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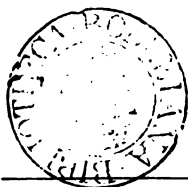
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JOURNAL OF THE STATISTICAL SOCIETY,**MARCH, 1878.****RECENT ACCUMULATIONS of CAPITAL in the UNITED KINGDOM.***By* **ROBERT GIFFEN.**

[Read before the Statistical Society, 15th January, 1878.]

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I.—Introduction.

THE members of this Society will readily understand that the subject of this paper is not one on which very exact statements are possible. It would only be by a careful inventory of the national wealth made on a specified date by competent valuers, with all the appliances of a national census and ordnance survey at their command, that a near approximation to an absolutely correct account could be obtained; and it would only be by comparing two such statements at different dates that we could get a similarly exact account of the increase or decrease in a given period. That any such valuation is ever likely to be made in any country may well be doubted. The minuteness of inquiry which would be needed to avoid cross entries, the obstacles presented by the difficulty of finding sufficiently numerous and competent valuers, and by the opposition of individual owners of property, the doubt which would always exist about even the best valuation, owing to the frequency and magnitude of the mistakes which are discovered when valuations are brought to the test of actual sales, are all reasons against the attempt at any such valuation. In the United States, it is true, such valuations are apparently attempted for the purposes of State taxation, and there is a valuation at every census, but it is quite certain that no small amount of personal property escapes the notice of the valuers, and the result is unsatisfactory. Even if such valuations could be made at given dates, comparisons between the

valuations at two different dates would be liable to be thrown out by changes in the interval in the level of prices through the increase and decrease of money, changes in the instruments and forms of credit, which alter the effectiveness of the same amount of money, and changes in the amount of credit itself, apart from the instruments it uses. In the United States, for instance, it would be very important in comparing the valuations of 1860 and 1870, to allow for the depreciation of the standard in the interval, through the large increase of paper money. These are all reasons for being content with approximations only in such a question, and for treating the whole subject with the utmost care and caution. They must also be my excuse in part for avoiding anything like elaboration and minute treatment of certain points. My object is not to treat the subject exhaustively, but rather to bring together and continue certain well known data which have been made use of in similar inquiries previously, and which will justify some broad conclusions, although a great deal must be left in doubt.

The uses of such an inquiry, if conclusions sufficiently trustworthy are obtainable, are obvious enough. It is one of the means of taking stock of national progress or the reverse. We compare at different times the numbers of the population and the amounts of crime and pauperism in a country as some test of its moral progress; or the numbers of the population and particulars of certain home and foreign trades, or of the consumption of certain articles, as a test of material progress. In the same way we may compare the population at different times with the accumulated wealth or the rate of increase of population with the rate of increase of wealth as a test of progress, partly moral and partly material. The particular advantage of this last comparison will also be that it answers directly some important public questions as to what the margin of taxation is in a country, and whether and how much it is increasing or diminishing. There are other questions, as we shall see, on which such inquiries throw light, but the direct information to be expected as to the increase or decrease of wealth, and as to national resources and burdens, may be kept primarily in view.

II.—*The Present Valuation of the United Kingdom.*

Before estimating what the recent accumulations have been, it will be expedient to have some view of what the existing capital or property is. We can then compare this sum with similar estimates at former periods, and the rate of increase apparent with such indirect evidence as we may procure as to what the rate of increase must have been.

The most convenient basis for such a proceeding appears now to be the income tax assessments. This is the plan adopted by a

writer in the "*Economist*" in 1863 (see "*Economist*," December, 1863), who is believed to be an eminent member of this Society, and whose contributions on this head have, at any rate, obtained wide circulation and acceptance. The method is to discriminate as far as possible in these returns the different sources of income, capitalise these at a suitable number of years' purchase, and then make an allowance or conjecture for the capital of the income not liable to income tax or which otherwise escapes assessment, and for capital which is not treated in the income tax returns as income yielding. The result, up to a point, if we proceed with care, is apparently trustworthy enough. We are quite sure in the first place of the existence of the income returned, whatever balance unreturned there may be; we can be tolerably safe also in not assigning too high a number of years' purchase to the particular descriptions of property; we can arrive in this way at a minimum sum, which cannot be more than the actual property in the country, though it may be much under the true amount. The conjecture as to the remainder may also be of such a kind as to command some confidence in its not being excessive.

Proceeding in this way, we find that the gross annual value of the income tax assessments in the year ended 31st March, 1875, the latest year for which we have particulars, was 571 millions. The details under each schedule for the United Kingdom since 1853, when Ireland was subjected to the income tax, and for Great Britain previous to that date, will be found in one of the tables in the Appendix; but for the present purpose we must discriminate even more minutely than by schedules. Schedules A and D in particular require to be analysed. Various returns of the Inland Revenue Department have of late years enabled us to do this as to "lands" and "houses" under Schedule A, and "mines," "iron-works," "railways," "canals," "gasworks," "quarries," and what are called "other profits" under Schedule D. These returns are also summarised in one of the tables in the Appendix. Still more a return, printed in the Nineteenth Report of the Inland Revenue Department (Appendix, p. xviii), gives a more minute classification of Schedule D. Using these sources of information, I have drawn up a table, showing the amount of income in the property and income tax returns for 1874-5, which is presumably derived from capital, the number of years' purchase in each case at which it appears safe to capitalise the income, and the approximate amount of capital thus deduced, adding an estimate for the remaining property and capital of the country:—

A.—Amount of Income in Income Tax Returns, derived from Capital, Number of Years' Purchase at which the same may be Capitalised, and Approximate Amount of Capital; together with Estimate of remaining Income and Capital in the Country.

[£'00's omitted in amount columns.]

	Income.	Years' Purchase.	Capital.
<i>Under Schedule A—</i>	£		£
Lands	66,911,	30	2,007,330,
Houses	94,638,	15	1,419,570,
Other profits	883,	30	26,490,
<i>Schedule B—</i>			
(Farmers' profits)	66,752,	10	667,520,
<i>Schedule C—</i>			
(Public funds less home funds)	20,767,	25	519,175,
<i>Under Schedule D—</i>			
Quarries	916,	4	3,664,
Mines	14,108,	4	56,432,
Ironworks	7,261,	4	29,044,
Gasworks	2,630,	20	52,600,
Waterworks	1,869,	20	37,380,
Canals, &c.	1,007,	20	20,140,
Fishings	207,	20	4,140,
Market tolls, &c.	842,	20	16,840,
Other public companies	25,647,	15	384,705,
Foreign and colonial securities, &c.	6,836,	15	102,540,
Railways in United Kingdom	26,215,	25	655,375,
" out of "	1,330,	20	26,600,
Interest paid out of rates, &c.	2,647,	25	66,175,
Other profits	1,120,	20	22,400,
Trades and professions—one-fifth } of total income of 175 millions.... }	35,000,	15	525,000,
Total under income tax.....	377,586,	—	6,643,120,
Trades and professions omitted, 20 per cent. of } amount assessed, or 35 millions, of which one- } fifth is	7,000,	15	105,000,
Income of non-income tax paying classes de- } rived from capital	60,000,	5	300,000,
Foreign investments not in Schedules C or D	40,000,	10	400,000,
Movable property not yielding income, e.g., } furniture of houses, &c., works of art, &c..... }	—	—	700,000,
Government and local property, say	—	—	400,000,
	484,586,	—	8,548,120,

The first point I would observe upon in explanation of this table, is the proportion between the income returned to the income tax and the amount here capitalised. The income assessed, as has been stated, is 571 millions, and the amount now capitalised is 378 millions. The difference is 183 millions, and is accounted for (1) by the large amount of the income from trades and professions under Schedule D which is not capitalised. The total income is 175 millions, and the amount capitalised is 35 millions, or only one-fifth,

leaving 140 millions, which is not considered to be derived from capital; (2) by the deduction from Schedule C of the amount of the permanent charge of our own national debt in 1875-76, viz., 21,737,000*l.*; and (3) by the omission of Schedule E, amounting to 32,540,000*l.* These three sums make up the 183 millions of difference between the total income assessed to the income tax and the amount which is treated as derived from capital. As regards the first of these deductions, I have been guided by the practice of Mr. Dudley Baxter, whose great loss to the study of statistics we have still to regret. In his paper on "National Income," which was read exactly ten years ago to-night to this Society, he stated:—"Trades and professions require working capital, the interest on which, in the opinion of competent judges, amounts to one-fifth of their gross income." Perhaps we should credit "trades and professions" with a larger working capital, but I should be willing in such a matter to be guided by so high an authority, while I have been desirous at every point to avoid too high an estimate.

As regards the second deduction, it will only be proper, I think, that in such a computation as this, we should not reckon the national debt twice over, and that would be the effect of our capitalising the whole of Schedule C. The national debt is a mortgage upon the aggregate fortune of the country. As we may assume it to be practically all held at home, we may reckon up our whole estate without deducting the debt, whereas we should have to deduct it if it were held by foreigners; but while we do not deduct the debt from the total of our estate, neither can we add it without falling into error.

As regards the third deduction, the whole of Schedule E, there can be little question. Schedule E consists *eo nomine* of salaries, pensions, and annuities, and is not earned by capital. Perhaps we should deduct the capital value of pensions and annuities on the same principle that we omit the capital value of the interest of the debt; but as pensions and annuities are payments in the nature of salaries, though for past not present services, it would perhaps be unfair to treat them as dead weight and a mortgage on the national resources. The amount in any case would not much affect the aggregate income, which would still be very large.

The next point I would draw attention to is the number of years' purchase of the principal items of income. I do not think anything need be said in explanation of the estimate for the largest item of all, viz., thirty years' purchase as the rate for capitalising land. Some may think that even a greater number of years' purchase might have been employed; but we must again carefully guard against excessive figures.

The estimate for houses, again, will be considered, I trust, very moderate. The same number of years' purchase was employed for some calculations in the last census report, although other authorities have reckoned twenty years' purchase. I should say that at the present time twenty years' purchase would not be too high, though I hesitate to take so high a number of years, especially as the figures are to be used in comparison with former periods, when house property may not at all times have commanded so great a number of years' purchase as it does now. At any rate, by taking a low number of years, we avoid difficult questions about deductions for repairs and the like, and, in a question of accumulation, the difference between the cost price of building houses and the sums at which we capitalise the income from them.

The next large item, that of farmers' profits, is taken at ten years' purchase only. The resulting total is rather less than 700 millions, which again is less than the value of the three years' gross produce of our agriculture, which is estimated, I believe, by the best authorities at 250 millions annually. Whether this figure is sufficient for farming capital as distinguished from that of the landlord, it will be for those well acquainted with the subject to judge. I have been desirous again to take a low figure.

Coming to the next item, Schedule C, here again I believe there will be no question of the propriety of twenty-five years' purchase. Looking at the price of Indian securities and Colonial Government loans, the income from which, no doubt, forms a large part of Schedule C, exclusive of home funds, we can hardly be far wrong in reckoning that the capital invested in these securities brings in on the average about 4 per cent.

Of the remaining items little need be said. The estimates of twenty-five years' purchase for railways, twenty years' purchase for gas works and water works, four years' purchase for mines, iron-works, and the like, can in no case, I should think, be thought excessive. The same with the estimate of fifteen years' purchase for miscellaneous public companies, which would include banks, telegraph companies, insurance companies and the like; and with the estimate of fifteen years' purchase for that small portion of the income of trades and professions which is considered to be derived from capital. By speaking of a fifth of trade and professional income as being interest on capital, we in fact imply that only a usual or legal rate of interest is considered to be derived from capital, and the remainder of the income is due to professional exertions. In this view we should capitalise the trade and professional income derived from capital at perhaps twenty years' purchase, and we are therefore moderate in capitalising at fifteen years' purchase only.

There will be more doubt, perhaps, about the last five items, where we have not the advantage of working from the income tax assessments, and which I have put in a smaller type than the rest of the table to distinguish the difference of basis in the estimate. But we cannot avoid making an estimate of some kind in these cases. The first case, that of trade and professional incomes, not returned under Schedule D, which I estimate to be 20 per cent. of what is returned, is, unfortunately, as we all know from the Inland Revenue Reports, a "true bill." In this category a certain amount of income liable to be taxed, does escape the officials of the Inland Revenue Department. The loss in this way has been estimated as high as one-third; Mr. Dudley Baxter reckoned it at 16 per cent., from which the present estimate of 20 per cent. does not vary materially. I have capitalised this income at the same number of years' purchase as the similar income returned under Schedule D.

The next item, that of the income of the classes who are not charged to income tax derived from capital, is necessarily very conjectural. Mr. Dudley Baxter considered this capital so small that it might be disregarded. Perhaps this would be going too far, considering the large amounts which must be invested in workmen's tools, and also the large number of small retail dealers there are throughout the country, the costermongers, greengrocers, and the like, who have all some capital, but who cannot be got hold of by tax collectors, or whose incomes are really under the minimum. Taking the income of the non-income tax paying classes at about 600 millions, which is about the amount, if we apply Mr. Dudley Baxter's method of estimating the nation's income at the present time, I have reckoned a tenth as derived from capital, and capitalised at five years' purchase only. The sum thus obtained is again a small one in comparison with the aggregate.

The next item, that of foreign investments, not included in Schedules C and D, will perhaps excite more question. I have put the income thus omitted at 40 millions and capitalised it at ten years' purchase only, which I believe to be under-estimated. That there is something omitted is evident from the small amount of income from foreign investments which is dealt with in Schedules C and D. The sums are:—

[000's omitted.]		£
Schedule C, less home funds		20,767,
Foreign and colonial securities and possessions, and other profits (Cases 4 and 5 under rules in Schedule D to Act 5 and 6 Vict., cap. 35)	}	6,836,
Railways out of United Kingdom		1,330,
Total		<u>28,933,</u>

Now, it is impossible to believe that this 29 millions is the total

income derived from the investment of British capital abroad. One has only to go over a stock and share list, like that of the "Investor's Manual," jot down the capital of the foreign issues brought out in this country, and which are wholly or mainly held here, to perceive that there is something wrong. We have also to consider that there is a large British capital invested abroad privately, through mercantile houses having dependent houses abroad, through insurance companies doing business abroad, through Anglo-colonial banks receiving deposits here and investing them abroad. In a table in the Appendix I have attempted a computation of the income from the visible part of this great capital. The result is that we cannot put at less than 65,000,000*l.* the income so derived, leaving out of account altogether the investments of private capital, which we know to be very large. In what way the income tax authorities are to get at the income which now escapes them, it would be out of place here to consider, but apart from the evidence above adduced, I believe I shall be confirmed by those who know the city, in the opinion that much income comes home from abroad which is not returned to the income tax authorities. These estimates fully warrant me in setting down 40 millions as the foreign income omitted from the income tax returns.

The next item on the list, that of movable property not yielding income, such as pictures, works of art, furniture of houses, old china, etc., is put at the capital sum of 700 millions, which is half the amount of the capitalised value of houses. Porter estimates a third for this item in his "Progress of the Nation," but considering the material advance since his time, I do not think we can be far wrong in placing the contents of houses at something like half the value of the houses themselves. In any case, if we valued the houses at twenty years' purchase, as some authorities do, one-third of the capital sum so arrived at would come to about the figure here stated. My own impression is, that the figure is under the mark, although I have stated it in preference to using a larger figure, in order to have former precedent in my favour.

The last item of all, that of the value of property belonging to Government and local authorities, is necessarily very speculative. There is no property, however, which ought more properly to come into such a valuation. It is the property of the community which is enjoyed in common, and the possession of which has often been bought out of taxes. It includes the value of the land of dockyards and other Government establishments, the plant employed in them, the public buildings and furniture, and the waterworks, gasworks, public parks, embankments, and other possessions of local authorities. The difficulty of valuation arises, however, from the circumstance that we have no statement even of the area of the lands possessed by local bodies, or of what is in Government posses-

sion. But the item must be very large. Apart from the local income from property, which is probably included in the income tax returns, there is an income from harbour dues and the like sources which is really a species of property, and there are large possessions which are devoted to some useful purpose, though not yielding a revenue. The municipal debts still outstanding amount to about 100 millions in England and Wales alone, and this is represented by an equivalent outlay for improvements in the localities. We thus arrive at a sum of between 200 and 300 millions as the value of local property; and Government property, although Crown lands only bring in 350,000*l.* a-year, must be something over 100 millions. It would be useless to attempt detail on a matter like this.

In this way the total capital of the people of the United Kingdom may be reckoned as a minimum at 8,500 millions sterling. This is the capitalised value of the income derived from capital, using as far as possible the data of the income tax returns as the basis of the estimate, and with the addition of an estimate of the amount of capital in use not yielding an income. It is a bewildering figure, about eleven times the amount of our national debt, which may thus be reckoned with all soberness as a fleabite. Nearly 7,500 millions out of this amount besides must be reckoned as income-yielding, only the remaining 1,000 millions being set down as the value of movable property or the direct property of imperial or local authorities, which does not yield any individual revenue. The suggestion may perhaps be made that to some extent these are only figures in an account—that the capital outlay on the soil, plant, machinery, factories, and houses of the United Kingdom, or on the circulating capital of our industry, would not come to so much. But in reply I would say that while there is no evidence one way or the other as to what the outlay has been, while we shall never know what it has cost from generation to generation, to give us all this inheritance, there is some justification for thinking that the values are stable and not transitory. They represent an estate on which thirty-four millions of people have facilities for production and distribution, which must be equal all in all to the facilities existing anywhere else, because they are constantly tried in the furnace of free trade, and are not sustained by any adventitious means. If certain properties have acquired what is called a monopoly value, it is because actual workers are able to pay the corresponding rent out of their first earnings, and have ample wages and profit besides. In such matters the property of a great country, like a factory or business, must be valued as that of a going concern, and the monopoly value which certain things acquire only enters into the question of the distribution of the estate and its income.

It would be additionally satisfactory if we could compare these figures with an account of the actual accumulations year by year in the shape of a statement of the capital outlay by public companies in adding to their stock and plant; the actual expenditure on new buildings, ships, and the like; the annual investments abroad, and so on. On some points I have made a few notes of this kind, which satisfy me that in this way also very large totals would be brought out. But the obvious difficulty with the method would be that the outlay by private individuals cannot be got at by means of it at all, and this outlay represents the greater part of the increase of capital in the country. At the same time, the account, if it could be given, would be subject to great deductions, on account of the improvident investment of capital, as in foreign loans, whereby the savings are not really accumulated but *wasted*. The method pursued in the present paper seems accordingly the safest and the likeliest to yield a moderate result, although it is liable to the observation that some property may increase in income-yielding capacity from decade to decade, and its capitalised value will proportionally increase, without any actual accumulation.

III.—*The Growth of Capital.*

Our special business to-night is not, however, with the actual capital at the present time, but with the recent accumulations, though a statement of the present amount appeared to be a necessary preliminary. It is evident almost at the outset that the growth must have been very rapid. If we look at the income tax returns, we perceive that the gross income assessed rose in Great Britain from 115 millions at the beginning of the century, to 130 millions in 1815, 251 millions in 1843, and 262 millions in 1853; and then, in the United Kingdom, from 308 millions in 1855, to 396 millions in 1865, and 571 millions in 1875. If the capital of that portion of the income derived from capital has only progressed at the same rate, the annual increase of capital all through, and especially of recent years, must have been enormous. The increase in the income assessed between 1865 and 1875 amounts to 175 millions, which is equal to 44 per cent. of the income assessed in 1865. Leaving out altogether the capital not yielding income, and dealing only with the capital yielding income, a similar increase of capital, assuming the present amount to be what we have stated, would give us for 1865 a total capital of about 5,200 millions, on which the increase at 44 per cent. would be 2,288 millions, or in round figures 230 millions per annum. If our estimate is moderate, and any cause would justify a higher figure for the present capital, then the increase between 1865 and 1875 would be even more than we state. But the increase on each description of capital may not have been

uniform, and we must look a little into detail to see what kinds of income, and therefore what kinds of capital, have increased.

Comparing 1865 with the present time in this way, we are met by the difficulty that we have not the full details we now have as to the various schedules, especially Schedules A and D. We can compare certain particulars, however, as far back as 1862, which is one reason amongst others why I have selected a ten years' period only as the principal subject of comparison. In this manner we get a table for 1865 similar to what we have above compiled for the present time:—

B.—Amount of Income in Income Tax Returns derived from Capital in 1865, and Approximate Amount of Capital, assuming the same Number of Years' Purchase as in Table A; together with Estimate of remaining Income and Capital in the Country.

[000's omitted.]

	Income.	Capital.
<i>Under Schedule A—</i>	£	£
Lands	62,127,	1,863,810,
Houses	68,757,	1,031,355,
<i>Schedule B—</i>		
(Farmers' profits)	56,181,*	620,000,
<i>Schedule C—</i>		
(Public funds less home funds)	8,426,	210,650,
<i>Under Schedule D—</i>		
Mines	4,829,	19,316,
Ironworks	1,798,	7,192,
Railways	16,576,	414,400,
Canals	900,	18,000,
Gasworks	1,849,	36,980,
Quarries	590,	2,360,
Other profits	3,012,†	55,000,‡
Other income tax income detailed in Table A— estimate	42,000,	660,000,‡
Total under income tax.....	267,045,	4,939,063,
Trades and professions omitted, one- fifth of about 100 millions. of which one-fifth is	5,000,	75 000,
Income of non-income tax paying classes derived from capital, say	40,000,	200,000,
Foreign investments not in Schedules C and D	10,000,	100,000,
Movable property not yielding income, e.g., furniture of houses, works of art, &c.	—	500,000,
Government and local property, say	—	300,000,
	332,045,	6,114,063,

* This is the amount stated in 1865. Previous to 1875 only the net amount was entered in the returns for Ireland, and in working out the capital an allowance has been made for the difference this made in 1875, about 6 millions.

† These include the other profits of Schedule A, and waterworks, fishings, market tolls, &c., in Table A.

‡ In these two cases where we have not the same detail as in 1875, the capital is assumed to bear the same proportion to the income in 1865 as in 1875.

In this way, following for 1865 the method of estimating we have used for the present time, though we have not quite so full data, we arrive at a sum of 6,114 millions as the total capital of that period :—

	Mins. £
The estimate at present being	8,500
That of 1865, say	6,100
The increase is.....	2,400

which corresponds nearly with the increase of 44 per cent. in the income tax returns themselves. The national estate has thus improved in the ten years at the rate of 240 millions per annum.

The following table compares the details of the increase :—

C.—Approximate Account of Capital as Property in United Kingdom in 1865 and 1875 compared.

	1865.	1875.	Increase in 1875.	
			Amount.	Per Cent.
	Mins.	Mins.	Mins.	
Lands	1,864,	2,007,	143,	8
Houses	1,031,	1,420,	389,	38
Farmers' profits	620,	668,	48,	8
Public funds less home funds ...	211,	519,	308,	146
Mines	19,	56,	37,	195
Ironworks	7,	29,	22,	314
Railways	414,	655,	241,	58
Canals	18,	20,	2,	11
Gasworks	37,	53,	16,	43
Quarries	2,	4,	2,	100
Other profits	55,	84,	29,	53
Other income tax, income principally trades and professions and public companies	659,	1,128,	469,	71
	4,988	6,643,	1,706,	35
Trades and professions omitted	75,	105,	30,	40
Income from capital of non-income tax paying classes	200,	300,	100,	50
Foreign investments not in Schedules C and D	100,	420,	300,	300
Movable property not yielding income ..	500,	700,	200,	40
Government and local property, say	300,	400,	100,	33
	6,113	8,548	2,436,	40

Generally, I believe, it will be admitted these details correspond with what we should expect to find. The small increase in lands and farmers' profits is what we should expect to find from the comparative stationariness of agricultural industry, while there is a comparatively large increase in railways, somewhat above the average, and an enormous increase in mines and iron works, corresponding to

the rapid development of iron and coal mining under the influence of the inflated prices of 1871-73. In the latter case probably part of the increase may be due to improved valuations, but it is in this direction certainly we should have looked for a great increase. So far as it goes, also, the increase of "Public Funds," Schedule C, is in correspondence with the fact of immense public loans to foreign countries in recent years, though it does not indicate, we believe, the full amount of the increased lending to foreign countries, which we have endeavoured to allow for otherwise. The item which will perhaps excite most surprise is the increase of "other income tax income, principally trades and professions, and "public companies." The estimated increase amounts to 469 millions, on a total of 659 millions in 1865, or 71 per cent. It would have been very interesting if it had been possible to give as full details for 1865 as for 1875, and thus show how much of the increase is due to "public companies," and how much to "trades and professions." It is obvious, at all events, that great as the increase is, and in whatever way it has occurred, one of the conspicuous facts of the income tax returns is the rapid increase of Schedule D, and principally of this part of it, in recent years. We can well believe that no such increase of income could have occurred without a corresponding or even greater increase of capital. Here, too, I believe city opinion will confirm me in the statement that something like this is what we should have expected to find. I have often heard it remarked at least, in explanation of the scarcity of bills in Lombard Street, that the trading classes were believed as a rule to have become richer of late years than they were in proportion. They have had more capital, and so did not require to borrow. Probably enough, therefore, the increase of capital corresponding to trades and professions, that is, of stock-in-trade and tenants' fixtures mainly, has been even larger than the increase of the income itself.

Having formed this estimate as to the increase of property during the last decennial period, it may be useful to corroborate it by an examination of the results that would be yielded by different methods. The comparison seems to bring out the very great moderation of the present method. I have already referred to the calculations of the writer in the "*Economist*" in 1863, who also took for his basis the income tax returns, and whose contributions to the inquiry from time to time must always be consulted by those who wish to study the subject thoroughly. Our figures are certainly much lower than his method would have furnished us. He states (see "*Economist*," 12th December, 1863):—"Considering, however, the large omissions and under statements of "all income tax statistics, and also remembering that the figures "before us wholly omit the sub-tax incomes, we have, after taking

"some trouble, arrived at the conclusion that if we multiply by "twenty, or, what is the same thing, capitalise at twenty years' "purchase, or at the rate of 5 per cent. per annum, the total "average annual increase shown in Table A" (a table summarising the various schedules of the income tax) "we shall not overstate, "but the contrary, the annual savings of the United Kingdom "during the five years in review." Applying the same method now, we find that the increase in all the schedules of the income tax between 1865 and 1875, is from 396 to 571 millions, or 175 millions in the ten years, that is $17\frac{1}{2}$ millions per annum. Capitalising this at twenty years' purchase, we get a total increase of 3,500 millions in the ten years, or 350 millions per annum, which is certainly a much larger figure than has been arrived at by the method used to-night. There is no doubt that since the period to which the "Economist" referred, viz., 1855-60, a good deal has been done to improve the income tax valuations. Even before 1865, as appears from the report of that year, a good deal had been done to stop the notorious leakages. But making all the new allowances we should make for changed circumstances, the method of 1863 must have brought out considerably higher figures. I am inclined to believe that the estimate to-night errs, if anything, on the side of moderation, and perhaps this confirmation I have brought may convince those who may have been startled at first by the great magnitude of the figures with which we are dealing, that these figures are really not excessive, but moderate.

There is yet a different way of estimating the accumulations of the country, viz., from the Legacy Duty Returns. Mr. Porter, in his "Progress of the Nation," makes especial use of these figures. He prints a long table (pp. 492—93, edition 1851) showing the amount of property which had been subjected to legacy duty in Great Britain in each year since the commencement down to 1848. This table I have reprinted and continued in the appendix, both as regards Great Britain and the United Kingdom, with the exception of ten years between 1849 and 1857 inclusive, in which it appears the Inland Revenue Department has not published the data it has since supplied. With these data Mr. Porter estimated that in 1841 the personal property in the country might be reckoned at 2,000,000,000*l.*, and in 1845 at 2,200,000,000*l.*; and comparing these sums with the corresponding amounts of property passing at death in the years mentioned, viz., 41 millions and 44 millions, it would appear that he reckoned the personal property in the country, as from forty-five to fifty times the amount annually subject to legacy duty. Multiplying by forty-five only the annual average of two years, 1865-66 and 1875-76, we should arrive at the following sums as the amount of personal property at these dates, and the increase in the interval:—

Capital Estimates in 1865 and 1875 deduced from the Property subject to Legacy Duty.

[000's omitted.]

	Average Property subject to Duty.	Calculated Total Amount of Personal Property.
	£	£
1875	104,686,	4,710,870,
'65	73,216,	3,294,720,
Increase	31,470,	1,416,150,

In other words, in personal property alone there was an increase of 142 millions per annum, according to this method, between 1865 and 1875. But this increase would not include any property subject to succession duty, the increase in which, adopting a similar method of calculation, and allowing for the difference that only the life interest of the succession is subject to duty would be as follows :—

Capital Estimates in 1865 and 1875, deduced from the Property subject to Succession Duty.

	Calculated Total Amount of Real Property.
	£
1875	3,150,720,
'65	2,213,550,
Increase	937,170,

Adding this last sum to the above figure for personal property, we get an estimated total accumulation between 1865 and 1875 of 235 millions per annum, which corresponds very closely, it will be observed, with the total arrived at by the method used to-night.

Whatever may be thought, therefore, of the estimates which have been made, they are fortified in some degree by the authority of former inquirers. Large as the totals appear at first sight, every one who looks into the subject, is satisfied that very large figures must be dealt with. If necessary, we might derive additional confirmation from a comparison of the increase of railway traffic, increase of the tonnage of shipping entered and cleared, increase of iron and coal production, increase of imports of raw material for manufactures, increase of consumption and revenue, and other data, all showing an enormous progress, which implies, when rightly inquired into, a corresponding increase of property. But the facts, though interesting, might lead us away from the main point, which need not be further illustrated.

IV.—*Comparative Growth in Former Periods.*

The question will be asked—How does the increase in recent years compare with the increase in former periods? The reply must be that whether we take the returns of the income tax, or of the legacy duty, or the estimates of property deduced from them, the increase of late years has been much more rapid than at any previous period of the century. The total assessment to the income tax in Great Britain appears to have been about 140 millions at the close of our great wars at the beginning of the century. It is stated to be 130 millions for 1813 in the accompanying table in the appendix, and Mr. Dudley Baxter gives the figure of 146 millions for 1814-15. Few good data unfortunately have been preserved for that period, and there is an additional difficulty in comparing with later times in the differences in the minimum subject to duty. But assuming 140 millions, we find that this compares with a total of 251 millions in 1843, when we have again got income tax data—the increase in the interval of thirty years being 111 millions, or about 80 per cent. In other words, the annual increase in this long period was rather less than 4 millions, and about 2½ per cent. per annum. Between 1843 and 1853 the increase was from 251 to 262 millions, or 11 millions in ten years, that is little more than 1 million per annum, which is even a lower rate of increase than between 1813 and 1843. In the next decade, which we take for the United Kingdom between 1855 and 1865, Ireland having been subjected to the income tax in 1853, the increase is from 308 to 395 millions, or 87 millions, and about 28 per cent. in the ten years. This shows a very different state of things from what had existed in the first half of the century; but great as the increase is, it is still less than what we have been dealing with between 1865 and 1875, in which period, as we have seen, the income assessed to income tax has increased 176 millions, or 44 per cent.

If we look at the returns of the legacy duty we arrive at the same conclusion of a very slow progress in the first half of the century and afterwards a progress at a rapid and accelerating rate. Mr. Porter tells us that in the early years of the century the returns are uncertain, but taking the average of two years at the end of each date since 1820, we get the following comparison :—

	Property subject to Legacy Duty
	£
1820.....	30,328,
'30.....	40,443,
'40.....	41,247,
'48.....	44,481,
'60.....	59,701,

[000's omitted.]

Thus the increase between 1820 and 1840 was 11 millions, or about 36 per cent., that is, about 550,000*l.*, or rather less than 2 per cent. per annum. The increase between 1840 and 1848 was only about 3,200,000*l.*, showing a still slower rate of increase than between 1820 and 1840, corresponding to the indication of the income tax returns between 1843 and 1853. But the increase between 1848 and 1860 is 15,200,000*l.*, or over 1,200,000*l.* per annum, and at the rate of 34 per cent. in the twelve years, or 3 per cent. per annum. Since 1860, as we have seen, the increase in the decade we have dealt with in the United Kingdom, has been at the rate of over 43 per cent. Thus there is a great start forward just after 1850, both in the income tax returns and amount of property subject to legacy duty. We have no data for the succession duty in the early part of the century, as it was only imposed in 1853; but since 1859, when we begin to have data, it has progressed with great rapidity, and with greater rapidity in the later than in the earlier years.

It may be interesting to exhibit these facts still more directly for our present purpose, by comparing Mr. Porter's estimates of "personal property" at different dates in the century with those which can now be made. He gives the following table for Great Britain, at p. 600 of his "Progress of the Nation."—

Years.	Personal Property.
	£
1814.....	1,200,
'19.....	1,300,
'24.....	1,500,
'29.....	1,700,
'34.....	1,800,
'41.....	2,000,
'45.....	2,200,

The highest sum reached is thus 2,200 millions, whereas the total for 1875-76, as we have seen, on the same method of valuation, is nearly 5,000 millions, of which nearly 1,500 millions was the increase between 1865 and 1875 alone. In other words, the increase in the last decade exceeded the whole personal property of the country in 1814, and was three-fourths of the amount of that property, even as late as 1841. So great has been the change in the material condition of the country in recent years.

The totals would not be greatly modified by the consideration of the important question in such matters, that of a change in the level of prices at different dates. It is possible—I should almost say probable—that part of the slow increase between 1815 or 1820 and 1840, and even to as late a date as 1850, was due to a gradual appreciation of the standard of value. Part of the great increase up to 1860 may also be ascribed to a rise in the level of prices

consequent on the Californian and Australian gold discoveries, which seem to have reached their maximum effect in the first decade. But there can be no such explanation of the improvement since 1865, which has been coincident with events in the money market, significant rather of an appreciation than a depreciation of the standard. There is nothing, therefore, to qualify our sense of the extraordinary accumulation of property in recent years, and which we can only ascribe to the accumulated effects of mechanical and chemical discoveries, so that year by year the industrial machine is more and more productive in proportion to the labourers employed.

V.—Comparison with other Countries.

It would more than exhaust the limits of a single paper to go into the question of a comparison of our national position, as regards capital, with that of any other country. But such a comparison would be most instructive. In France, for instance, it is known from the estimates of the ministry of Finance, that real property has increased immensely during the present century, while manufacturing industry has also extended. So with Germany and the United States. The latter country, as I have stated, possesses the data of regular valuations at every census, and the gross figures thus arrived at since 1791 are as follows:—

Statement showing the Population and Wealth of the United States by Decades, from 1790 to 1860; Decennial Percentage Increase of Population; Decennial Percentage Increase of National Wealth; and Average Property to each Person.

Year.	Population.	Decennial Percentage Increase of Wealth.	Decennial Percentage Increase of Population.	Decennial Percentage Increase of Wealth.	Average Property to each Person.
		\$	Per cent.	Per cent.	\$
1790	3,929,827	750,000,000 (estimated)	—	—	187'00
1800	5,305,937	1,072,000,000 (estimated)	35'02	43'0	202'13
'10	7,239,814	1,500,000,000 (estimated)	36'43	39'0	207'20
'20	9,638,191	1,882,000,000 (estimated)	33'13	25'4	195'00
'30	12,866,020	2,653,000,000 (estimated)	33'49	41'0	206'00
'40	17,069,453	3,764,000,000 (official)	32'67	41'7	220'00
'50	23,191,876	7,135,780,000 (official)	35'87	89'6	307'67
'60	31,500,000	16,159,000,000 (official)	35'59	126'42	510'00
'70	38,538,000	30,069,000,000 (official)	22'00	86'13	776'96*

* But allowance ought to be made here for the depreciation of the dollar between 1860 and 1870.

Here again, as with ourselves, the increase has been much smaller between the beginning of the century and 1840, than it has been since, and it is especially noticeable that what increase of property there was in the earlier period, only corresponded to the increase of population. The increase between 1860 and 1870 is at a less rate than in the previous decade, contrary to our experience in this country, but the difference is no doubt mainly due to the civil war in the United States. The contrast would have been more striking but for the depreciation of currency between 1860 and 1870. The total United States' property in 1870, it will be observed, was a good deal less than our own total at the present time, 6,000 millions sterling, against 8,500 millions sterling, while the amount per head, owing to the larger population, must be much smaller. But there would be a great increase in the United States between 1870 and 1875, and in any case the total is a very large one, and is so far confirmatory of the large figures of our own estimates.

VI.—*Concluding Observations.*

What is the bearing of the facts brought out on what was stated at the outset as the main object of such inquiry?—that is, the degree of improvement (if any) in the material welfare of the community in consequence of these accumulations of capital, and the addition to the margin of taxation. It is evident, from the mere statement of the percentages of increase, that the improvement in both respects must be great. Since 1855 at least the increase of property must have been 30 per cent. in the first decade, and during the second decade the increase must have been 44 per cent., so that the addition to the capital of the community in that time has been immensely greater in proportion than the increase in its numbers. The increase of population has been about 1 per cent. per annum, but property has increased 3 to 4 per cent. and upwards. Whether the property so increased is productive or unproductive, the resources of the community as a whole must have been greatly enlarged. They have more to enjoy, even if the means of increasing production have not increased proportionately with other property. But that reproductive capital has increased quite in proportion, if not more in proportion, is, however, very obvious. The railways, mines, ironworks and stock-in-trade of trades and professions are precisely those descriptions of property, with only slight exceptions, in which there has been the largest proportionate increase of property. As regards the question of the margin of taxation, the figures are absolutely astounding. The apparent increase of capital between 1865 and 1875 alone is 2,400 millions sterling—that is, about three times the amount of the national debt. That is to say, the community has acquired in ten years three times the amount of

its debt. It could pay the debt three times over, and still be as rich as at the beginning of the decade. Allowing that to keep things in equilibrium there ought to be an increase of capital *pari passu* with the increase of population, the increase of capital in the ten years (1865-75) merely to keep the community as rich as it was, would only have been a little over 600 millions. Deducting this from the 2,400 millions of actual increase, we have still a sum of 1,800 millions, or two and a half times the national debt, which the nation could afford to pay, and still be as rich individually as it was ten years ago.

The following figures will, perhaps, bring out the comparison still more clearly :—

	Amount of Property (in Millions).	Amount per Head of Population.
1875.....	£ 8,500	£ 260
'65.....	6,100	204
Increase..... {	2,400 = 39½ per cent.	56 = 27 per cent.

Allowing for the increase of population, there is still an increase of over one-fourth, or 27 per cent., in the capital of the community in the decade. The nation might lose a fourth of its property, and still be as rich and prosperous as it was ten years before. Thus, whether we compare the increase of property per head, or the increase in relation to the national debt, the facts are equally striking.

Incidentally the figures as to income we have been using as the basis of these calculations about property, afford additional evidence as to this increase of the margin of taxation. The capital yielding income by Table A, 1875, is 484,586,000*l.*; by Table B, 1865, it is 322,045,000*l.*; showing an increase of 162,541,000*l.* Deducting 10 per cent. for the increase of population, there still remains an excess increase of income from capital beyond the increase of population, amounting to 130 millions sterling. This means that taxation to an immense amount could be imposed, and yet the share taken by the Government of the earnings of the community from capital alone would still leave the community per head as much as it possessed in 1865. If there has been anything like a similar increase in the earnings of the community in wages and salaries, the real margin of taxation must have increased very much more. It is no doubt quite true that the Chancellor of the Exchequer could not deal with the matter in this arithmetical manner. The practical margin of taxation for him to deal with must be very much less. The increase of wealth and wages has

brought an increase of the scale of living, which would make a diminution of the profit of the community from capital to the level of ten years ago be greatly resented. A tax just imposed is also by many degrees more burdensome and injurious to industry than one which has long been in existence. But the magnitude of the arithmetical increase of the margin proves that the increase which could be practically dealt with as a resource in time of need must be very large.

If we carry the comparison a little farther back, say for half a century, as some of the figures we have used would suggest, we cannot but be impressed with the marvellous change which has come over the country. We emerged from the great wars at the beginning of the century, with a debt of 900 million sterling, which was practically a burden upon the people of Great Britain, amounting to between a third and a half of their capital. Mr. Porter, as we have seen, estimates the personal property at that time at 1,200 millions sterling, and the real property, the income from Schedule A being under 40 millions, would be little over 1,000 millions more. In other words there was a debt of 900 millions against an estate of say 2,200 millions. Reckoning per head of the population, the debt was about 70*l.*, and the property about 170*l.* Now the property of the United Kingdom is 8,500 millions, or 251*l.* per head, and the debt has sunk to about a tenth part of the latter sum, or 25*l.* per head. According to this reckoning also, the income from capital in 1815, was probably not more than 90 millions sterling, on which the charge of the debt was about one third; now the income from capital is 445 millions, on which the interest charge of the debt, amounting to 21 millions, is only one *twenty-second* part. Apart from any proportionate increase of the earnings of the people per head, such great changes have passed over the resources and burdens of the people within a period so short that the burden itself is still not unfrequently talked of, by a kind of tradition, in the language of the time when it was really crushing. Had we a national debt corresponding to what existed fifty years ago, it would be over 3,000 millions, and not under 800 millions sterling; and the interest charge would be above 100 millions, instead of 21 millions a-year.

Before I conclude, I may notice one or two points on which observation may have been expected. One is the distribution of this great increase of wealth. In one respect, as regards the three divisions of the United Kingdom, it has perhaps been unnecessary to do so, while it would be difficult to find sufficient details, owing to the large amounts of income which are earned in one part of the country and which pay income tax in another. The great increase

both in amount and per head of population is undoubtedly in England, although the income tax returns show clearly enough that both Ireland and Scotland now progress very rapidly. In another aspect, viz., as to whether capital is being more diffused, or is accumulating in fewer hands, I am afraid the data are not sufficiently good for any sure conclusions. There are certain means for comparing the number of assessments under Schedule D, at different amounts of income, which would appear to show that the number of large incomes is increasing more quickly than the increase of population or the increase of wealth. But the fact of the rich class becoming a little more numerous, would not prove that as a whole the number of people possessed of moderate capital and the average amount they possessed are increasing or diminishing, while the increasing number of company assessments under Schedule D, makes the number of assessments altogether useless for comparison, as we have no information whatever respecting the number of individual shareholders in the different companies, the average amount of each individual interest, and the interests of the holders in Schedules A, B, and C. For these reasons mainly, and also partly for want of time, I have not inquired into this part of the subject; the problem could only be attacked in a most indirect manner.

Another question which has been raised of late, is whether the nation is *now* spending its capital. The figures to-night may at least be taken to prove, I think, that if the nation has begun to spend its capital, instead of saving capital, the process is a very new one. So far as our researches carry us, the fact we have to deal with is, that the rate of saving has been far greater of late than at any previous period during the present century; that the saving all through has been at an increasing rate. The figures would also show that the only fact alleged in proof that we are living on our capital is insufficient to make out the case. The allegation is that the excess of imports is now so great as to show that we are calling in our capital from abroad. But apart from the incidental evidence which has been before us to-night, as to the great amount of lending in former years, which entitles us to the receipt in each year of an enormous income from foreign countries, so that the excess of imports would need to be much larger than it is to prove any material calling in of capital from abroad;—it must also be apparent that if the nation is calling in some fraction of its foreign investment, it is not therefore stopping its savings or diminishing its capital. The foreign investments, though they were very large in the years before 1875, were by no means the chief part of the national accumulations. Our main savings were at home. Before the nation can be said to be living on its capital, it must be shown

that not only is capital being called in from abroad, but that more is so called in than what is being simultaneously invested at home. I have not seen this point considered by any of those who have made the suggestion that the nation is living on its capital.

And this brings me to the next question, on which perhaps some observation may have been expected, viz., whether in point of fact the nation is saving at home in years like the present. In what sort of years are the accumulations, such as those we have been dealing with between 1865 and 1875, the greatest, and in what years are they at a minimum or suspended, or is the process nearly uniform? I am afraid it is impossible to answer this question in anything like a complete manner. The assessments to Schedule A of the income tax have not hitherto been made annually, but at intervals of years. We cannot tell, therefore, from these data what the increase is in a particular year. The assessments of trade profits under Schedule D again may be made on the average of three years' profits, which throws out all possible comparison of annual increases. But we have good reason to believe that in no year is the accumulation absolutely at an end; and that in many directions it is even more active in dull years than it is at other times. We know, for instance, that the capital outlay on railways is incessant; that during the last two or three years of depression, and even now, the nation is saving in railways very nearly as much as the annual income of the capital invested in them. In agriculture again, there is a constant annual reclamation of land in progress, besides an incessant outlay on the older cultivated area. The house-building trades again are as active at the present time, and have been for the last year or two as busy, as for many years previous, showing the absence of any stoppage to accumulation in this direction. We may anticipate from what has happened before, that the enormous increase in mines and ironworks, which was one of the special features of the accumulation between 1865 and 1875, is checked; that the next income tax returns will not improbably exhibit a falling off on these heads.* But in general the extension of factories and warehouses, and the increase of machinery, goes on in dull as well as good times. We all know how Lancashire went on adding to its cotton spinning and weaving power even during the cotton famine, and a similar extension of manufacturing power, we may be sure, is going on at the present time. So far as one can judge, the only direction in addition to that of mines and ironworks in which saving is now checked, as compared with the period of which we have been treating, is in

* The Twentieth Report of the Inland Revenue, which has been issued since this paper was read at the Statistical Society, exhibits as here anticipated a falling off on these heads.

foreign investment. From the nature of the case, every other species of accumulation is in progress as before. The truth is, that owing to the division of labour, there must be a vast disorganisation of industry, not a mere temporary falling off from a former inflation, before accumulation can be wholly checked. A certain portion of the community is told off, as it were, to create the accumulations, and if the accumulations were not made, we should see in the building trades, in railway construction, in shipbuilding, and numerous other directions, a wide-spread stoppage of works, and masses of unemployed labourers, far exceeding anything witnessed even in those terrible times of depression which were frequent before the free trade period, when industry was partially disorganised, and pauperism assumed most threatening dimensions. In the absence of the effects which would follow, we must assume that the cause is not present, that there is no stoppage of accumulation; but that accumulation, on the contrary, goes on at present in most directions at an average annual rate, or at a rate greater than the average.

It is a different question altogether whether there is any ground for anticipating a permanent change in the extent of our accumulations at an early date. This is substantially much the same problem as you will have to consider at your next meeting; but perhaps we may just glance at it to-night according to the indications in the facts which have been before us. What appears to me most striking is the apparent indestructibility of most of our capital. The drainage and other improvements of land, the roads, railways and canals, the houses, the improvements of towns, the machinery and plant set up in every direction, are all forms of fixed capital, which are there to be used, if the willingness to work and enjoy all this vast estate only exists. Unless a species of paralysis seizes our workmen and capitalists, I do not see what hindrances there are to this vast industrial machine being used, whether to make for ourselves, or to make wherewithal to buy from other countries the surplus they may have to exchange with us. A great deal is said at the present moment which is substantially to the effect that workmen and capitalists are paralysed, but looking at the matter scientifically, and from a point outside as it were, the balance of probability must be held to be that the higgling of the market, as has always happened before, will result in a working compromise, and that industry will be resumed, and go on, after much individual losses, but without, in the aggregate, any loss or destruction of capital. It is said again, that our coal and iron will soon be exhausted, and that our whole position is based upon cheap coal and iron; but, in reply, we may observe that in the above valuation of our capital the value of mines and ironworks has been reckoned at only a few years' purchase; a few

years' industry would replace to us the capital value, and all our other capital—our improved soil, our dwelling houses, our machinery, our roads, and much more—would remain. Looking at our capital as a whole, I think it is a strong thing to say that because many years hence we shall not possess as a nation a certain particular form of capital, therefore the other forms of capital will not remain to be used and enjoyed. Against all considerations of this nature, we may perhaps set the continual progress in invention which is being made, and which seems to benefit most the nations with accumulated capital. If the steam engine is improved, so that two pounds of coal can do what three pounds did before, then it is the nation which has most steam machinery which is clearly the greatest gainer. So with other inventions. It will be the fault of the English people if their progress is not in future even more rapid than it has been in the past.

APPENDIX.

1A.—LEGACY DUTY. *Table showing the Amount of Capital upon which Legacy Duty has been Paid in GREAT BRITAIN, in each Year from 1797 to 1848, and from 1859 to 1862.*

[Reprinted from Porter's "Progress of the Nation" for the years ending 1848, and compiled as to subsequent years from the Reports of the Inland Revenue Department.]

[000's omitted.]

Years.	Amount of Capital subject to each Rate of Duty.									Total Capital subject to Duty in each Year.
	1 per Cent.	2 per Cent.	3 per Cent.	3 per Cent.	4 per Cent.	5 per Cent.	6 per Cent.	8 per Cent.	10 per Cent.	
	£	£	£	£	£	£	£	£	£	£
1797.....	—	734,	—	42,	14,	—	327,	—	—	1,116,
'98.....	—	1,484,	—	310,	38,	—	673,	—	—	2,505,
'99.....	—	1,701,	—	339,	39,	—	860,	—	—	2,939,
1800.....	—	2,320,	—	355,	150,	—	1,297,	—	—	4,122,
1801.....	—	2,133,	—	376,	79,	—	953,	—	—	3,542,
'02.....	—	2,467,	—	370,	35,	—	1,235,	—	—	4,107,
'03.....	—	3,061,	—	385,	55,	—	1,109,	—	—	5,110,
'04.....	—	2,722,	217,	551,	72,	4,	1,630,	106,	—	5,802,
'05.....	259,	232,	2,292,	31,	375,	79,	82,	1,100,	—	4,451,
'06.....	1,546,	819,	2,729,	13,	510,	64,	67,	1,283,	8,	7,039,
'07.....	2,495,	1,175,	3,377,	4,	700,	43,	35,	1,676,	10,	9,516,
'08.....	2,798,	1,018,	3,988,	1,	656,	74,	7,	1,433,	263,	10,238,
'09.....	5,769,	37,	6,576,	20,	916,	146,	62,	753,	2,117,	16,396,
'10.....	5,429,	16,	4,853,	—	1,997,	87,	2,	399,	1,517,	14,802,
1811.....	5,897,	15,	5,714,	6,	872,	123,	2,	301,	1,827,	14,757,
'12.....	7,444,	1,	5,881,	2,	929,	153,	1,	324,	1,888,	16,623,
'13.....	9,248,	2,	7,060,	—	1,166,	89,	4,	285,	2,264,	20,119,
'14.....	14,636,	44,	8,396,	—	1,149,	136,	1,	863,	2,574,	27,300,
'15.....	14,021,	44,	8,432,	803,	1,286,	419,	6,	179,	2,921,	28,201,
'16.....	12,755,	11,	888,	5,872,	159,	1,042,	137,	306,	2,903,	24,073,
'17.....	16,150,	62,	1,316,	9,675,	141,	1,405,	399,	319,	3,651,	33,118,
'18.....	15,784,	89,	858,	7,971,	119,	1,424,	233,	242,	3,508,	30,179,
'19.....	15,713,	25,	739,	7,586,	54,	1,001,	280,	292,	3,722,	29,412,
'20.....	16,681,	18,	888,	8,501,	61,	1,070,	214,	191,	3,626,	31,245,
1821.....	16,477,	71,	730,	10,041,	181,	1,504,	263,	169,	3,588,	33,023,
'22.....	17,040,	187,	844,	9,447,	109,	2,567,	735,	200,	3,844,	34,923,
'23.....	15,314,	231,	717,	10,827,	53,	1,306,	278,	206,	3,804,	32,736,
'24.....	17,933,	102,	441,	11,357,	73,	1,344,	245,	198,	4,159,	35,853,
'25.....	17,751,	1,	275,	9,858,	130,	1,932,	246,	318,	4,291,	34,802,
'26.....	15,392,	—	149,	10,325,	19,	1,186,	291,	73,	3,640,	31,025,
'27.....	16,673,	—	215,	10,819,	12,	2,015,	264,	33,	4,028,	34,058,
'28.....	19,469,	—	225,	12,967,	30,	1,716,	302,	106,	4,285,	39,100,
'29.....	20,550,	—	318,	11,614,	38,	1,726,	384,	121,	4,916,	39,667,
'30.....	21,067,	—	163,	12,031,	17,	2,726,	378,	165,	4,672,	41,219,
1831.....	21,280,	—	141,	11,417,	33,	1,686,	354,	78,	4,643,	39,532,
'32.....	23,390,	—	273,	13,095,	24,	1,365,	320,	67,	4,800,	43,335,
'33.....	22,277,	—	307,	12,959,	9,	1,757,	264,	78,	4,323,	41,974,
'34.....	22,109,	—	160,	12,401,	37,	1,559,	301,	92,	4,916,	41,575,
'35.....	22,086,	—	207,	11,932,	17,	1,642,	301,	95,	4,814,	41,093,
'36.....	22,323,	—	207,	12,421,	24,	1,787,	233,	52,	4,722,	41,769,
'37.....	22,708,	—	164,	13,046,	54,	1,755,	502,	41,	4,347,	42,618,
'38.....	23,435,	—	164,	14,600,	22,	1,651,	433,	21,	4,979,	45,306,
'39.....	21,604,	—	101,	13,149,	38,	2,639,	428,	10,	4,083,	42,052,
'40.....	21,084,	—	159,	12,810,	13,	1,730,	248,	87,	4,361,	40,442,

I.A.—Amount of Capital upon which Legacy Duty has been Paid—Contd.

[000's omitted.]

Years.	Amount of Capital subject to each Rate of Duty.									Total Capital subject to Duty in each Year.
	1 per Cent.	2 per Cent.	2½ per Cent.	3 per Cent.	4 per Cent.	5 per Cent.	6 per Cent.	8 per Cent.	10 per Cent.	
	£	£	£	£	£	£	£	£	£	£
1851	21,823,	—	58,	12,937,	27,	1,441,	339,	15,	4,836,	41,477,
'52	23,020,	—	84,	12,711,	17,	1,568,	283,	38,	5,027,	42,749,
'53	23,137,	—	120,	18,490,	93,	1,596,	211,	14,	4,733,	43,398,
'54	24,118,	—	107,	13,708,	11,	1,406,	362,	11,	4,580,	44,394,
'55	24,088,	—	152,	14,599,	10,	1,802,	318,	23,	4,607,	45,600,
'56	22,810,	—	74,	13,398,	13,	1,575,	291,	10,	4,465,	42,631,
'57	22,235,	—	52,	14,274,	4,	1,842,	285,	35,	4,883,	43,612,
'58	24,649,	—	75,	13,518,	9,	1,824,	230,	10,	4,033,	44,349,
1859	36,180,	—	78,	17,860,	23,	2,540,	504,	4,	5,047,	62,236,
'60	31,887,	—	12,	18,536,	6,	1,791,	261,	5,	4,668,	57,166,
1861	32,600,	—	10,	18,674,	2,	1,994,	536,	4,	5,001,	58,521,
'62	35,303,	—	46,	18,577,	5,	2,257,	278,	16,	5,712,	62,194,

I.B.—Amount of Capital on which Legacy Duty has been Paid, at each Rate, in the UNITED KINGDOM in each of the Years ended 31st March, from 1859-76.

[Compiled from the Reports of the Inland Revenue Department.]

[000's omitted.]

Years.	Amount of Capital subject to each Rate of Duty.									Total Capital subject to Duty in each Year.
	1 per Cent.	2½ per Cent.	3 per Cent.	4 per Cent.	5 per Cent.	6 per Cent.	8 per Cent.	10 per Cent.	Under 56 Geo. III. Cap. 56.	
	£	£	£	£	£	£	£	£	£	£
1859	37,986,	78,	18,909,	23,	2,590,	510,	4,	5,342,	3,	65,445,
'60	33,451,	12,	19,601,	6,	1,881,	280,	5,	4,896,	29,	60,160,
'61	34,296,	10,	19,531,	2,	2,081,	252,	4,	5,185,	10,	61,321,
'62	36,624,	46,	19,476,	5,	2,346,	292,	16,	5,860,	2,	64,666,
'63	35,993,	14,	21,749,	41,	2,261,	270,	2,	5,914,	13,	66,257,
'64	38,001,	23,	21,595,	18,	1,977,	296,	9,	5,177,	10,	67,106,
1865	40,035,	8,	21,806,	3,	2,465,	246,	4,	5,952,	23,	70,541,
'66	40,190,	6,	25,914,	33,	2,919,	378,	1,	6,432,	18,	75,890,
'67	41,752,	9,	22,481,	16,	3,424,	229,	3,	6,466,	3,	74,384,
'68	51,487,	29,	26,276,	—	3,277,	379,	19,	6,592,	11,	88,070,
'69	47,145,	44,	26,338,	—	2,963,	1,065,	10,	5,962,	10,	83,587,
'70	50,340,	8,	26,788,	—	2,923,	249,	—	7,402,	12,	87,721,
1871	50,707,	1,	24,285,	11	2,848,	243,	—	7,594,	10,	85,700,
'72	55,101,	17,	29,997,	—	3,147,	509,	—	9,117,	24,	97,912,
'73	51,871,	5,	26,816,	—	3,604,	397,	—	8,186,	28,	90,907,
'74	58,346,	2,	31,018,	—	3,801,	268,	36,	8,423,	17,	101,909,
'75	59,689,	2,	30,266,	4,	3,461,	311,	—	8,908,	13,	102,655,
'76	60,890,	11,	33,061,	—	3,338,	493,	2,	8,896,	25,	106,717,

II.—SUCCESSION DUTY. *Table showing the Amount of Capital upon which Succession Duty has been Paid, at each Rate, in the United Kingdom, in each of the Years ended 31st March, from 1859-76.*

[Compiled from the Reports of the Inland Revenue Department.]

[000's omitted.]

Years.	Amount of Capital subject to each Rate of Duty.					Total Capital subject to Duty in each Year.
	1 per Cent.	3 per Cent.	5 per Cent.	6 per Cent.	10 per Cent.	
	£	£	£	£	£	£
1859	21,467,	5,590,	749,	68,	1,369,	29,243,
'60	19,181,	6,263,	930,	129,	1,705,	28,208,
1861 ...	18,841,	6,157,	1,090,	137,	1,694,	27,918,
'62	18,341,	5,977,	928,	141,	1,822,	27,209,
'63	21,247,	6,504,	896,	232,	1,907,	30,786,
'64	20,629,	6,348,	859,	217,	1,381,	29,434,
'65	19,816,	6,083,	824,	159,	1,332,	28,213,
'66	21,925,	6,215,	1,046,	122,	1,508,	30,816,
'67	22,096,	7,295,	790,	187,	1,525,	31,893,
'68	24,584,	7,281,	935,	292,	2,051,	35,143,
'69	25,581,	7,876,	1,142,	189,	1,757,	36,045,
'70	26,195,	7,717,	1,284,	218,	1,771,	37,184,
1871	25,296,	7,944,	1,240,	143,	2,425,	37,048,
'72	25,544,	8,327,	1,165,	190,	2,215,	37,441,
'73	26,735,	7,682,	1,271,	245,	2,515,	38,448,
'74	26,477,	8,375,	975,	247,	2,792,	38,865,
'75	30,076,	8,080,	1,320,	326,	1,924,	41,725,
'76	30,192,	8,819,	1,097,	185,	2,003,	42,295,

III.—INCOME TAX. *Gross Amount of the Annual Value of Property and Profits Assessed to the Income Tax under each Schedule in Great Britain, in each of the Years ended 5th April, 1804 and 1813, and in each Year from 1843-54, and in the United Kingdom from the latter date to the Present Time.*

[Compiled from "Marshall's Digest" and other authorities as to early years, and from the Reports of the Inland Revenue Department for 1843 and subsequently.]

[000's omitted.]

Years ended 5th April.	Amount of Property and Profits Assessed under each Schedule.					
	Schedule A.	Schedule B.	Schedule C.	Schedule D.	Schedule E.	Total.
GREAT BRITAIN.						
	£	£	£	£	£	£
1804	38,691,	24,280,	11,918,	34,854,	5,609,	115,352,
'13	Not stated	Not stated	Not stated	Not stated	Not stated	130,058,
'43	95,284,	46,770,	27,910,	71,330,	9,718,	251,013,
'44	94,518,	45,661,	27,140,	65,029,	11,282,	243,830,
'45	95,300,	46,329,	26,501,	65,095,	11,072,	244,297,
'46	98,459,	47,171,	25,586,	70,292,	11,454,	252,971,
'47	99,667,	46,649,	26,005,	70,577,	11,723,	254,621,
'48	101,444,	46,718,	26,133,	70,192,	11,927,	256,413,
'49	105,253,	48,164,	26,447,	67,061,	12,289,	259,215,
1850	105,025,	48,103,	26,311,	64,934,	11,760,	256,132,
'51	105,530,	48,017,	26,435,	65,717,	11,694,	257,393,
'52	105,839,	46,681,	26,352,	69,078,	11,540,	259,491,
'53	107,202,	46,657,	26,798,	70,038,	11,681,	262,375,
'54	111,222,	46,843,	26,834,	88,402,	13,584,	286,885,
UNITED KINGDOM.						
1855	124,872,	49,396,	27,326,	91,280,	15,265,	308,139,
'56	126,529,	49,587,	25,778,	88,201,	17,326,	307,421,
'57	128,099,	49,701,	28,345,	89,199,	17,712,	313,056,
'58	136,614,	51,886,	29,515,	90,840,	18,334,	327,139,
'59	137,667,	51,699,	29,347,	90,865,	19,048,	328,127,
1860	138,951,	52,003,	29,701,	95,439,	19,094,	335,188,
'61	141,664,	52,102,	27,481,	94,740,	19,667,	335,654,
'62	148,652,	54,301,	29,083,	99,373,	20,336,	351,745,
'63	150,102,	54,302,	30,653,	103,121,	20,965,	359,143,
'64	151,943,	54,345,	31,529,	112,240,	21,046,	371,103,
'65	161,397,	56,181,	32,044,	124,076,	22,131,	395,829,
'66	165,615,	56,234,	33,071,	134,439,	23,746,	413,105,
'67*	136,868,	56,435,	33,640,	173,089,	23,742,	423,774,
'68	143,071,	57,807,	33,690,	171,848,	23,953,	430,369,
'69	144,876,	57,961,	34,790,	173,054,	24,123,	434,804,
1870	146,526,	58,007,	35,700,	178,379,	26,301,	444,914,
'71	152,463,	59,125,	38,119,	189,025,	26,863,	465,594,
'72	153,818,	59,196,	38,646,	202,905,	27,773,	482,338,
'73	155,622,	59,247,	40,530,	228,870,	29,539,	513,808,
'74	160,282,	60,342,	41,819,	249,878,	30,704,	543,026,
'75	162,432,	66,752,	42,390,	266,942,	32,540,	571,056,

* The assessments on railways, quarries, mines, ironworks, fisheries, &c., were transferred from Schedule A to Schedule D, from 5th April, 1866.

Note.—The income tax was not extended to Ireland until the year 1853. The first assessment appears in the years ended the 5th April, 1855. In the assessment under Schedule B, only the net amount was returned for Ireland in years prior to 1874-75.

IV.—*Particular Assessments to INCOME TAX. Gross Amount of the Annual Value of Property and Profits Assessed to the Income Tax, upon Various Classes of Property under Schedule A, in each of the Years from 1862-75.*

[Compiled from the Reports of the Inland Revenue Department.]

[000's omitted.]

Years ended 5th April.	Amount of Property and Profits Assessed upon various Classes under Schedule A.								
	Land.	Houses.	Mines.*	Iron-works.*	Railways.*	Canals.*	Gas-works.*	Quarries.*	Other Profits.†
	£	£	£	£	£	£	£	£	£
1862	60,305,	61,924,	4,436,	1,080,	14,814,	961,	1,318,	440,	2,423,
'63	60,074,	63,137,	4,516,	1,021,	15,125,	938,	1,392,	444,	2,505,
'64	60,119,	64,333,	4,572,	1,130,	15,455,	936,	1,436,	461,	2,577,
'65	62,127,	68,757,	4,829,	1,798,	16,576,	900,	1,849,	590,	3,012,
'66	62,414,	70,213,	5,080,	1,840,	18,537,	962,	1,892,	606,	3,088,
'67	62,697,	72,175,	5,612,	2,398,	18,878,	823,	2,151,	575,	2,165,
'68	64,109,	78,126,	5,745,	2,014,	18,831,	743,	1,991,	641,	2,437,
'69	64,163,	79,887,	5,480,	1,911,	19,780,	714,	1,971,	646,	2,647,
1870	64,133,	81,519,	5,544,	2,019,	20,718,	747,	2,157,	697,	2,745,
'71	65,381,	86,412,	5,892,	2,701,	21,956,	775,	2,605,	719,	2,774,
'72	65,430,	87,721,	6,335,	3,141,	23,129,	753,	2,667,	756,	2,876,
'73	65,514,	89,457,	7,283,	4,762,	25,440,	790,	2,797,	763,	3,413,
'74	66,580,	93,018,	10,546,	7,218,	27,032,	755,	2,666,	814,	3,298,
'75	66,911,	94,638,	14,108,	7,261,	27,545,	1,007,	2,630,	916,	3,801,

* The assessments on mines, ironworks, railways, canals, gasworks, quarries, and other profits, were transferred from Schedule A to Schedule D, from 5th April, 1866, but they are given in this table from 1867-75 for the purpose of comparison.

† "Other profits" include fisheries, salt and alum works, docks, drains and levels, and tolls of various kinds.

V.—*Estimate of Annual Interest on English Capital Invested Abroad in Public Loans or Shares of Companies.*

[Compiled from "Investor's Monthly Manual" and banking supplements of "Economist."]

[000's omitted.]

	£	£
PUBLIC LOANS in "Manual" list, exclusive of United States, French, Austrian, and Italian ... }	28,250,	
Add estimate for proportion of United States, French 5 per cents., Austrian, and Italian held here. Total interest about 60,000,000 <i>l.</i> , say one-fifth	12,000,	
	—	40,250,
RAILWAYS—		
United States, excepting shares and bonds of railways in default	4,383,	
Indian and colonial	5,550,	
Foreign, 6,742 <i>l.</i> , less 1,200 <i>l.</i> , half of Lombardo-Venetian interest	5,542,	
	—	15,475,
Add—		
French railways, 15,130 <i>l.</i> , say one-tenth held in England	1,513,	
	—	16,988,
Dividends of Anglo-foreign and colonial banks		2,184,
" canal companies	203,	
" city loans	531,	
" discount and finance companies	170,	
" gas and waterworks	327,	
" iron and steel companies	138,	
" land and investment companies	336,	
" tea companies	188,	
" other "	415,	
" mines	535,	
	—	2,843,
Capital investment of English insurance companies doing business abroad, say 10,000,000 <i>l.</i> at 6 per cent. }		600,
Deposits of Anglo-foreign and colonial banks, per last two supplements of "Economist," 92,000,000 <i>l.</i> , at say 3 per cent. }		2,760,
Total		65,625,

DISCUSSION ON MR. GIFFEN'S PAPER.

DR. GUY said it was not for him to make any observations on the subject as a financier, but towards the end of the paper a passage occurred which seemed to him to be of considerable interest. It referred to a subject on which he had not heard those observations made which it appeared to him quite natural should be made. There was a notion abroad that our coal-fields would, some day or other, be suddenly exhausted; but he was of opinion that, whatever the supply of coal might be for our own domestic purposes or for export, there would be a gradual increase of price, which would itself go a great way towards preventing us from suffering any sudden injury or loss. There was at present an export of coal as ballast, which an increased price would check; and so of export for sale. As the price rose that would fall, and in these and other ways the exhaustion of our coal would be made gradual instead of sudden. The paper before the Society had all the interest which should attach to a paper coming from such a source, and it had excited in him (Dr. Guy) some surprise at the extraordinary rate at which the wealth of this country was alleged to be increasing. It ought to be a great comfort to think that the nation was growing so rich, unless, as was foretold by Mr. Finlaison, in his evidence before a Parliamentary Committee some years ago, the nations were growing rich, and would, as a matter of course, spend their savings in perhaps not the worst way in which money could be spent, because peace had its evils as well as war; and if war was a fever, peace too prolonged was a sort of consumption. However that might be, it was desirable that the money we accumulated should not be spent in that way if it could be avoided. The principal question to be raised in reference to the paper was whether the figures contained in it were to be considered as true representatives of the real state of affairs; and that question he left to others to discuss.

MR. BOURNE, without questioning the accuracy of the calculations as to the amount of income derived from capital, said it was open to consideration whether, of late years, the rate of profit on the employment of capital had not been very much greater than it was in former years. He thought that all experience showed at least that there never was a period in which the retail price, for instance, of articles consumed was so far in excess of the wholesale price at which they were produced. He took it that particularly in 1871 and 1872 there was not so real an enlargement of income as was generally supposed; but the large increase of our income then led to an extravagant expenditure, so that men who invested capital looked for a much larger return for that capital than they ever did before. The enormous profits in the iron trade caused by the extension of railways, shipbuilding, and foreign demands were patent to every one, and thus if income were capitalised at the same rate in

1875 as in 1865, it was a question whether capital was not being magnified to an undue extent. It should be borne in mind that a large proportion of the returns was on an average of three years, and that, therefore, there was a portion of the inflated profits of 1872, 1873, and 1874, which increased the tax upon the income of 1875, and since that year all experience went to show that there had been a very large reduction in many sources of taxable income, and it was very possible that when the figures for 1878 or 1879 were brought out they would include the present period, and it would be found that the income to be taxed was far below that of the returns for 1875. But beyond that, the question as to the excess of imports required to be considered from a different point of view. Our relations at home, and those with foreign countries, were two distinct things. Whether we were living on our capital as represented by the excess of our imports, must be ascertained by finding what was the amount of the income derived out of the country, because that was the only income which could be applied towards the excess of imports. It was a fact that there was now an excess of 100 millions a-year in imports more than there was seven years ago; therefore he took it that this country, in relation to the rest of the world, would be 100 millions worse off than it was formerly, unless we were earning a large amount in other countries. The 100 millions could only be paid out of the income which was accruing to us beyond the shores of our own country, and if our income had increased in anything like that proportion in those years, then we would still be enabled to purchase those goods without any detriment to our national prosperity; but if our income abroad remained stationary, then we would be 100,000,000*l.* a-year worse off than before. With regard to the income at home, he thought it was somewhat of a fallacy to say that the income of the country was the aggregate income of the individuals in the country. The income-tax return might be very good for certain purposes, but it must be borne in mind that a great deal of income was taxed many times over. A landed proprietor, for instance, paid for his daughters' education, paid his physician's fees, and his lawyer's bills, and all these were again reckoned as part of income in another direction. The position in which we stood in regard to foreign countries was that we were dependent upon them for the absolute necessities of life. It had been distinctly proved that at the present moment one-half of our population were fed upon supplies of food which were of foreign produce, and these must be paid for some way or another. There were two or three sources from which we could balance our account. In fact, we might receive those imports without any payment at all out of the country, because they might be the result of our investments abroad, or our earnings abroad, or our employment of time and thought at home, applied to operations conducted abroad. All these were sources of income extraneous to the country, and they might be paid to us in goods. The next source was by bartering our own produce for the produce of foreign countries. It was certain that we were continually selling less and buying more, because the balance between this year and last year was 25 millions more to our disadvantage. At the end of 1876 the balance against us was

75 millions; and in 1877 it was 100 millions; and that was going on increasing, for the exports diminished and the imports increased. If we could not persuade other nations to buy our goods, and if we had not an income accruing outside the boundaries of our own country, there was only one other mode by which exports could be paid for, and that was by withdrawing capital from our previous investments. Whether we were eating up our capital abroad or not, depended upon whether the income accruing to us was equivalent to the balance we had to pay on the settlement of our accounts. He was not surprised at there being so large accumulations of property at home; at the same time trade was in a very bad state. In point of fact, as the writer of the paper had remarked, at the time of the Lancashire cotton famine capital was increasing, because the labour employed in the country could not find its reward in manufacturing those goods which were to be sold abroad, and therefore there was a surplus of capital employed at home, and the natural instinct was to invest at once in increasing our property here. What was the reason why house and ship-building was so extensive at the present moment? It was because our ship-builders and house-builders found it very easy to borrow money at a small rate, and were calculating that the time would come when ships and houses would be in much greater demand. That was one of the great reasons why the property at home had accumulated to a very considerable extent. He was not surprised, therefore, that it was co-existent with the diminution of our trade abroad, which he for one looked upon with a most serious aspect. He hoped that there would soon be a revival of trade, although he had no expectation of it at the present time.

Mr. NEWMARCH, F.R.S., replied in detail to Mr. Bourne, and expressed his agreement with the paper.

Mr. WALFORD said he had not observed that Mr. Giffen had taken into account, in making his estimate, the depreciation of accumulation, which would arise in reference to the increased cost of living in its widest sense, which he thought within the last twenty years had increased to the extent of nearly 30 per cent. The wealthy people spent a small portion only of their income for the necessaries of life, but the great middle class spent a large part of their income for the same purpose, and this increase of cost should be taken into account more than it had been. With regard to the cost of food, a good paper had been read at the British Association meeting last autumn, by Mr. Bourne, who had also read an able paper on imports and exports, in this room, within the past twelve months; but in it, as he (the speaker) had pointed out at the time, the proceeds from the interest of foreign loans had not been sufficiently taken into account. This was an element which he ought to have dealt with more at large, for it would compensate in a great measure for the difference between imports and exports, to which Mr. Giffen had referred this evening. In reference to America, Mr. Giffen had made little reference to the practice of taking the census of the people's income, which was printed and

published in the district where it was taken ; so that everybody had the means of knowing the returned income of everybody else. He would not recommend the process in this country ; but he should like to know if the author of the paper had considered the operation of this method, as the real point which always arose in such questions, was how best to get the facts. Unless there was a general conspiracy to evade proper contribution to State levies, publicity ought to operate as a check to fraud : and even with such a conspiracy, the means might still be equal to the end in view.

Captain CRAIGIE said he had been lately making investigations similar to those the author of the paper had been engaged in, and his total of existing British capital practically agreed with that given to-night. It was 8,600,000,000*l.* He believed that both Mr. Giffen's aggregate, and that at which he himself arrived, were under the mark. There were, however, as was to be expected, some divergence in detail between his own calculations and those laid before the meeting. In one particular, to which he would ask Mr. Giffen's attention, he felt sure that gentleman must have inadvertently over stated one form of capital. That employed by tenant farmers, in the work of their farms, as estimated from their profits under Schedule B, was in the present table placed at nearly 700,000,000*l.*, in other words, an average of between 14*l.* and 15*l.* per cultivated acre. Now he had some practical acquaintance with the matter, and he had been in communication very recently with practical men in various parts of the country, land agents, owners, and farmers, to discover what was the general impression as to the average amount of the tenants' capital per acre, and the real figure of his yearly profits. The results of these inquiries convinced him that 8*l.* per cultivated acre was a far more likely average of farming capital, and that a sum of one-half the rental did not exceed the annual profits of farming. It must not be forgotten that these profits even thus reduced did not all arise from capital, but in many cases covered the personal earnings or wages of the occupiers' labour. The figures given by Mr. Giffen as farmers' profits represented the gross total of the rental of British farms, including tithes. Now it was not the assumption of the legislature, in imposing the income tax, under Schedule B, that this rental equalled in any proper sense the farmers' profits. On the contrary the law presumed the farmer only to make half of his gross rent in profit, and on the figures of the schedule, charged only (after all the deductions were made) a tax of 1½*d.*, in place of 3*d.* in the pound. One-half the rental, and not the total of the schedule, was also the measure whereby the fact of the tenants' income being above or below 400*l.*, or 150*l.* a-year, was proved so as to give him the exemptions and abatements allowed to all incomes of these dimensions. He found that the amount of farming capital taken at 8*l.* per cultivated acre, represented about eleven years' purchase of the aggregate half-rental. Ten years ago, Mr. Dudley Baxter estimated the farmers' total capital at 300,000,000*l.* This he (Captain Craigie) believed rather too low a figure. He could not however manage to place it even now as high as 400 millions,

which he had lately heard Mr. Caird mention, but with the figures before him could go no farther than 376 or 380 millions as the tenants' investments in the work of agriculture. This was of course apart from the large amount of landlords' improvements, the annual value of which was included and capitalised under Schedule A. On the other hand, he was disposed to raise the total of others of Mr. Giffen's figures, and as to the number of years' purchase, taken under Schedule D, in certain cases he should like to know whether it was the general opinion, that four years' purchase for instance, was sufficient in the case of quarries, iron mines, &c. He would himself prefer to balance what he thought should be deducted from the assumed agricultural capital by placing rather higher than indicated by Schedules C and D. When this was done, however, the net result given by Mr. Giffen was not far from what he had arrived at. He thought attention should be called especially to the figures of Mr. Giffen, as to the relative rates at which the capital had recently increased. On certain forms of capital there had been no increase in these ten years at all equal to the average rate of progress or to the exceptional advance in certain sorts of property. The increased value of landed property was often insisted on, but from the figures of the income tax assessment, swollen as these are by the effect of better valuations, lands had only increased 8 per cent., less even than canal property, which was not usually deemed flourishing, had been going backward in many cases, but which yet showed an increase of 11 per cent., and this, while other properties had increased 38, 146, 195, and even 314 per cent. The kind of capital which had lately increased, and which had so largely added to the wealth of the nation during the last few years, was clearly that which bore the most reproductive character, and offered a promise of the largest profits, and the accumulation which Mr. Giffen's valuable paper demonstrated, was not so much composed of national savings, as of greater and more extensive investments in active business or speculative enterprises.

Mr. MUNDELLA, M.P., said that the paper was one of the greatest intellectual treats it had ever been his privilege to listen to. The last speaker had doubted Mr. Giffen's calculations with regard to farmers' profits, but he (Mr. Mundella) thought that the net result had not been materially disturbed, and that, on the whole, Mr. Giffen's statement was rather under than over estimated. In answer to the question as to whether the nation was continuing at present to save, he could assure Mr. Bourne and other gentlemen present that certain kinds of investments were still being made at an increased ratio. The investments in the colonies were at present larger than they had ever been in the history of the country. The amount of money invested in developing the Australasian group of colonies was at least three or four times greater than it was seven years ago. He was able to state this in consequence of his connection with Australian banking. All this capital was exceedingly well invested and, for many years past, had yielded handsome returns. With respect to the large surplus of imports as compared with exports, he must say that it was rather apparent than real. Mr. Bourne

said that foreigners were ceasing to buy from us, but he forgot that last year 200 millions in value of British products had been exported, many of which, such as calico, coal, iron, &c., had been sent out at a lower rate than they had been for the last twenty years. With regard to the imports, he would remind Mr. Bourne that every hundred pounds of goods exported were entered at the Custom House at the lowest possible price that could be legally fixed, in order that too much duty should not be paid on them at the port of destination. To the 200 millions of exports would have to be added the whole of the freights, commissions, and charges outward. But that was not all. They were often sent to British merchants who had their houses in all parts of the world, and who paid the duty—very often high—on these goods with British capital; and they were sent back to this country, not only with all the freights, charges, and duty on them, but perhaps twelve months' interest in addition. All the freights and many of the profits had also to be deducted from the imports, so that the net sum which reached the original producer was much less than that which it was thought at first the goods when exported would realise. He did not think they need trouble themselves about the question of imports. It was impossible to estimate the amount of British capital that was invested all over the world; and the imports represented the interest of that British capital. Mr. Newmarch had truly said that very often there was a return of fortunes made abroad. He believed that, at present, there was a considerable saving going on in the country, and he was not sure whether he would be wrong in saying that it was as large now as it was in more prosperous years. It was not always in the years that seemed most prosperous that most money was saved. One of the speakers had estimated the enlarged cost of living in recent years at 30 per cent.; but that was really far too high an estimate. Animal food had no doubt increased very largely in price, but when the whole cost of living was taken all round, he doubted whether, during the last ten years, it had greatly increased. Some items had certainly very considerably decreased. The conclusion he formed from Mr. Giffen's paper was, that it was a striking illustration of the blessings of peace and free trade.

The PRESIDENT, in moving a vote of thanks to Mr. Giffen, said he had seldom had the opportunity of listening to a more interesting or more philosophical paper. He inclined to think, however, that the figures were, in some respects, rather over-stated than under stated. He had arrived at the same conclusion as Captain Craigie, but in a somewhat different manner, as to the farmers' profits. He did not think that the tenants' capital on cultivated land amounted to more than 8*l.* an acre; and as the cultivated land of the United Kingdom did not exceed 45 millions of acres, this would give 360 millions in lieu of 700 millions—Mr. Giffen's estimate. Again, Mr. Giffen had spoken of the profits of miscellaneous companies, such as bankers and insurance companies, and he (the President) inclined to agree with Mr. Bourne, that it was possible that a good deal of the profits might be reckoned twice

over. For instance, all the assets of insurance companies were invested, and appeared in the tables under other heads; he thought also that the capital given in Table C, under the title of trades and professions, was rather exaggerated; because the table was made up to 1875, when the rates of profit had been very high for three or four years; and it should be recollected that the income tax returns were made up on the average of three years' profits. Looking, however, generally at the tables, and making some allowance for deductions in respect of the periods he had named, there was no doubt that there had been a great increase in realised capital of the country in the ten years between 1865 and 1875. The increase in the trade of the country during those years had been enormous, certainly more than it had ever been in the country before. The greater part of this increase had taken place in the last half of the decade; it should be recollected that during the years 1868-70, the trade in this country was exceedingly bad. Although in his opinion, in some respects the figures in the last table might be exaggerated, yet, taking the two periods, and comparing them, there had been an enormous increase of wealth in the country. He entirely agreed with what had been said by Mr. Newmarch in answer to Mr. Bourne, as to the difference between the values of imports and exports. For his own part he felt not the smallest alarm at the great difference. One of the most valuable parts of the paper was that where Mr. Giffen showed that the total investments of this country in foreign securities—the interests on these investments, amounting to no less than 65 millions—would account for a great part of the difference between the value of imports and exports. In years when large investments are made in foreign securities, the values of imports and exports might nearly approach. If those investments ceased there would probably evidently occur an enormous difference in the exports and imports; and if those investments after a time were renewed, he thought that the difference between exports and imports would be seen to disappear, or to become much less. For his own part, he did not feel the slightest alarm on this score. He was quite certain that foreigners did not send us produce without in some way being paid for it. The satisfactory part of the figures was that which showed the enormous wealth of the country. He believed with Mr. Mundella that, notwithstanding the general depression of trade, there was a great deal of saving going on in the country. The depression was mainly in the ironworks and mines. There was some satisfaction to the rest of the country in knowing that the profits of mine owners had fallen off, because what it really meant was a great reduction in the price of coal. The price of coal had been greatly reduced, and in some branches of trade that was an important item. It might be hoped, therefore, that the lowness of price in coal and of other commodities which to a great extent depended on coal would, in time, tell upon the general trade of the country, and therefore out of our present depression we might at no distant date hope to see a general revival of trade, not less great than that which followed the great depression in 1870.

Mr. GIFFEN, in reply, expressed his thanks for the reception given to his paper, and for the interesting discussion which it had elicited. With reference to his taking a year in which the profits would be excessively large, it was almost by accident that he had selected it—he had simply taken the *last* year of which the Inland Revenue had published details as to the income tax; but it happened that the year with which he compared it, viz., 1865, was also a year in which the profits were just at the maximum. With regard to what had been said as to the rate of profit having been much higher lately, he was inclined to think that, although the amount of profit on capital had been very large indeed, the rate of profit had not been any greater: at any rate there had been no sign of increased profits as far as could be judged from investments, because all the prices of securities stood much higher than they did ten years ago, and the yield obtainable for the same money was less. Capitalists were content to do business at less profit than before. His mode of comparison was too favourable to 1865, instead of being too favourable to 1875. With regard to agricultural capital, that was a point to which he must confess he had not given much attention, and he was obliged for the information given in reference to it during the discussion. But it seemed to him that although the estimate of tenants' capital was given by Captain Cragie, on very high authority, the amount stated was much too low for the proper working of farming business. He should say that the capital was much larger and much more nearly that stated in his paper, than the estimate which had been given; but that was a point upon which he was willing to be corrected. He did not think he need go into the question of excess of imports over exports, except to point out that the matter for surprise was not that the excess of imports now was so large, but that in the years 1869-72 the excess of imports was so small as it was. Even in those years the excess of imports was something like 60 millions, and at that time the investments that were being made in foreign countries must have been from 60 to 80 millions per annum, so that after we made that investment, we had still an excess of 60 millions of imports to be received.

DIAGRAMS EXHIBITING *the POSITIONS of the BANK of ENGLAND, the BANK of FRANCE, the GERMAN REICHSBANK, the NATIONAL BANK of AUSTRIA, the NETHERLANDS BANK, the NATIONAL BANK of BELGIUM, the NATIONAL BANK of ITALY, and the STATE BANK of RUSSIA; with REMARKS thereon and REFERENCES to the NOTE ISSUE SYSTEM of the BANK of ENGLAND.* By ERNEST SEYD, ESQ., F.S.S.

[Read before the Statistical Society, 18th December, 1877.]

THE first set of diagrams which I have the honour of submitting to you, illustrates the accounts of the Bank of England, the Bank of France, the German Reichsbank, the National Bank of Austria, the Netherlands Bank, the National Bank of Belgium, the National Bank of Italy, and the State Bank of Russia for one year.

The diagrams are constructed upon the following plan:—

The faint upright lines, of about one-eighth of an inch apart, represent weeks, and the accounts are strung on each line. The horizontal fine lines represent one-fifth of a million sterling, each million being three-quarters of an inch apart, and every 5 millions being furnished with a number and a thicker line.*

I have adopted the principle of separating the banking business of each institution from its issue of notes, and the strong black and red line of demarcation drawn across the accounts has, below it, the issue; above it, the banking; the former running in millions downwards, the other in millions upwards. Whether, as in the case of the Banks of England and Russia, the banking and issue departments are separated by law, or whether they form one account, the method adopted is alike suitable for either.

The diagrams compelled me to make a slight change in the constellation of the accounts of the Bank of England. The weekly statement issued shows—

* The diagrams exhibited before the meeting were on a large scale; those attached to this *Journal* are so much reduced in size that it was found impracticable to reproduce the faint weekly lines, and the horizontal lines for millions follow the reduction.

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LIABILITIES.**ASSETS.****ISSUE DEPARTMENT.**

£		£
<i>Notes issued</i>		<i>Government securities</i>
		<i>Other securities</i>
		<i>Gold bullion</i>
		<i>Silver „</i>
_____		_____
_____		_____

BANKING DEPARTMENT.

£		£
<i>Capital</i>		<i>Government securities</i>
<i>Reserve</i>		<i>Other securities</i>
<i>Public deposits</i>		<i>Notes in reserve</i>
<i>Other „</i>		<i>Gold and silver coin</i>
<i>Seven days' bills</i>		
_____		_____
_____		_____

As this official form does not show the amount of notes in circulation in a direct manner, and as the repetition of a sum as liability on one, and at the same time as asset on the other side, is obviously unsuitable to a diagram, and as other items were required, I have adopted the following order.

Reading the diagram of the Bank of England from the bottom of the issue upwards under—

Liabilities,**The ISSUE DEPARTMENT,****Total Issue,**

extends from the lower black and red line to above the line of demarcation, the upper red and black line corresponding with the reserve of notes on the asset side of the banking department. The actual amount of notes in circulation is coloured in grey, the lower line showing its variations.

The **BANKING DEPARTMENT** reads—

From the demarcation line upwards.

Capital } coloured green.
Reserve }

Seven days' bills, coloured pink.

Bankers' balances (coloured dark red) as portions of

Other deposits, coloured pink.

Public deposits, coloured pink.

Exchequer balances, coloured dark red.

The items of bankers' balances and exchequer bills are not given in the weekly accounts of the bank, but are taken from parliamentary returns. The diagram reads under—

Assets,

The ISSUE DEPARTMENT,
Bullion, coloured yellow,
Government and other securities,

the latter being coloured *blue up to the line of demarcation*, thus showing at a glance to what extent the circulation is covered by bullion, whilst that portion which lies above is left in white, as representing also—

In the BANKING DEPARTMENT,
The reserve of notes.

Although this is left in *white*, it must be borne in mind, that in reality it is covered by interest-bearing securities in the issue, but for the purposes of the banking department it is a non-interest bearing asset. Then follow—

Gold and silver coin, coloured yellow.
Government securities coloured blue, and
Other securities, also coloured blue.

With the exception of

Temporary advances, coloured blue with a violet margin, and
Bills discounted, coloured violet, and I may at once say that it is
this latter item which is chiefly worthy of attention.

The same reading upwards, and the same colours, apply to all the foreign banks, with such slight variations as may be pointed out. The note circulation as grey, the capital and reserve as green, the deposits and other liabilities as red and pink on the one side, the reserves white (or with a red margin), the bullion as yellow, Government and other fixed or purchased securities as blue, advances, as with a violet margin, and bills discounted as violet, on the other side, will enable you at a glance to estimate the relative positions of the various banks. The diagrams being hung so as to bring the separation line on a level, you can at once appreciate the relative extent of what belongs to the so-called banking from the issue.

All the accounts are of the year 1876, excepting that of the Netherlands Bank, which runs from the first quarter 1876 to 1877, and the Bank of England, the account of which represents the year 1875. I was compelled to choose that year of the Bank of England for the following reason.

The bills discounted and the temporary advances are not given in the weekly balances, but in separate returns made to Parliament. The Royal Commission inquiry, after the crisis of 1857, obtained from the Bank of England extra returns, including bills and advances from the year 1844 to 1857. Subsequently the late Mr. J. B. Smith, member for Stockport, moved for and obtained a continuation of the same from 1857 to 1872, since when Mr. J. Backhouse, member

for Darlington, has regularly moved for their production every year, and those for 1873, 1874, and 1875 have been given. During last session he moved for those of 1876, and certain items have been published, excepting bills and advances. The Bank of England was understood to object to publish these items again, and they had not been asked for.

The policy of the Bank of England in not giving information, is in strange contrast with all other great banks. Every one of these furnishes voluntarily a yearly report, in shape of a more or less extensive volume, in which the proceedings and accounts are set forth with great detail. These reports are most valuable and most instructive to the economical sense of the community.

In extenuation of these proceedings, the Bank of England pleads that it is not, like the other foreign banks, a State bank, but a mere private institution. The plea is wrong in theory, and still more wrong in practice. With the exception of the Bank of Russia, which is avowedly a State bank, all the other banks are entirely independent of the State, and have their independent shareholders. It is true that foreign Governments have a voice in the appointment of the governors and directors of their banks, but this does not in any way interfere with the public and private business of these institutions.

If truth, there is no bank which has more practical connection with the Government than the Bank of England itself. Not only does it manage the national debt, keep the Government accounts, and among public deposits are matters under the State's guardianship, but its bank note issue has the privilege of legal tender expressly enforced upon the public by the State. The Bank of France only acquired this right in 1871, the German Reichsbank and other banks entirely lack this most important faculty, which alone is more than sufficient to give to the Bank of England the character of a State bank above all others, if a discussion on the exact meaning of that term should arise.

The publication of the accounts of the Bank of England would be a great boon to the community and an advantage to shareholders. That it *ought* to be a matter of pride to both the bank and the public, may be admitted. The errors and misconception to which the present secrecy leads, can be shown in one notable example.

Those who look at the bank's weekly accounts find in the assets of the issue—

	£
Government debt	11,015,100
Other securities	3,984,900

the latter consisting also of Government securities.

Then they find in the banking department—

	£	£
Government securities, say	14,000,000	to 15,000,000
and, again, Other securities, say	22,000,000	

besides notes and coin in reserve.

The bank thus holding from 29 to 30 millions of Government securities, the natural inference is, that as it is the leading discount institution in the world, the 22 millions *Other securities* at least must be bills discounted. This is an error. Besides the property in premises and other matters of this kind, the greater portion of the *Other securities* consists of investments made by the bank in interest-bearing securities, such as railway debentures, colonial securities and others. What the precise nature of these securities is, has never been published, they might include mortgages or other unsaleable matters, but it is surmised that they are mostly bonds as mentioned, *purchased* by the bank. But for the Parliamentary returns the public would never have known that the other securities are not bills.

At various times, the bills discounted have amounted to between 2 or 3 millions, and the advances to between half and 1 million. At other times they are higher, and in case of bullion withdrawals reach a sum equivalent to these, but the total average of bills thus held by the bank since 1844, scarcely reaches 6 millions. In the year 1875, the *Other securities* amounted at one time to 20 millions, of which only 2 millions were *bills*, and 2 millions *temporary advances*. In the diagrams before you, the bills discounted by the Bank of England accordingly form but a loose fringe at the top, whereas in all the other banks they form the most important item.

Referring now to the diagrams, I ask permission to postpone the comparison between the Banks of England and France until I come to the second more extensive set of diagrams, in which the accounts for several years are given.

Meantime I proceed with the *Reichsbank of Germany*. The year represented is the first of its existence under the new law, and the deposit business has made a very fair beginning. The upper red portion are deposits at interest; the bulk, in pink, are balances of current accounts without interest. Almost all the States in Germany, Bavaria, Würtemberg, Saxony, &c., have their chief banks, and there are other joint stock banks and bankers which come into competition with the Reichsbank. In course of time the latter will, no doubt, much increase its business. As you see, the note issue and bullion (all in gold) are already larger than those of the Bank of England. On the asset side of the banking business you will perceive that the greater portion of the assets consists of

bills discounted. A small part only are advances. The Reichsbank holds no, or only very few, Government securities or other stocks whatever, neither in its banking nor in its issue business. Now, this is not due to the fact that there are not sufficient Government and Other securities in the German market; although our English national debt is larger, yet there are plenty of imperial and other State debts in Germany besides securities similar to those held by the Bank of England. But the management of the Reichsbank (as direct proof of its total independence of Government influence) says to itself:—

“We know that the aggregate securities floating in, or to be had in the market, consist of Government stocks, railway debentures, securities to advance upon and mercantile bills, in which all banks must share. We will take our share in bills. If anybody wants notes from us, he must either bring gold or good short mercantile bills.”

Nothing can be more plain and logical. It does not involve a mere matter of policy, but recognises a distinct right. The note circulation is wanted less for the purposes of credit (for the large percentage of cover by bullion precludes, as a rule, this suggestion), but because it is a necessity on the ground of convenience, as well as for the equalisation of the currency; and in all countries where specie payments prevail, the bank-note circulation forms a regular element and a steady percentage of the total currency. And by insisting upon its right of choosing bills as security, the Reichsbank compels the other banks to take in more Government and other securities by way of reserve. The bills thus acquired are the “finest” endorsed, or short bills, and by the organisation of its clearing system all over the country, bring the Reichsbank into continuous connection with the currency generally. Moreover, the Reichsbank obtains these bills at its own rates of interest, although the market rates are frequently $\frac{1}{2}$ or 1 per cent. below the bank rate, as they are here. On the whole, however, the market remains in accord, the bank being, by its action, the tranquillising factor. During 1876 its rates were respectively 5, 4, $3\frac{1}{2}$, and 4 per cent. for bills. For advances on public securities the Reichsbank charges 1 per cent. more, so as to discourage the habit of borrowing money upon a contract already made.

For the issue of notes of the Reichsbank, the old outward limit of a minimum of $33\frac{1}{3}$ per cent. of bullion has been maintained, but the bank has to pay a rate of interest or penalty of 5 per cent. per annum on such fiduciary issue above the sum of £12 $\frac{1}{2}$ millions which it has free. This penalty betrays the rough economical proceeding of the Government, but the principle, carried out in a more scientific method, is worthy of attention. For all practical

purposes, however, the free limit of £12½ million (since increased by issues resigned by other banks, to about £13½ million), contains precisely the same principle as Sir Robert Peel's Act with the £15 millions of the Bank of England, viz., the limitation by amount. But there is this very important difference, the Bank of England at once makes use of its issue right, as both minimum and maximum at all times, and holds what is called a *reserve of notes*, whilst the Reichsbank only issues as much of the £12½ millions as actually wanted, keeping the rest as *issue in reserve*, and treating the limit as maximum only. Hence whilst the note reserve in the Bank of England is a non-interest-bearing asset in the banking department, as the diagrams show, the issue reserve of the Reichsbank stands apart from the accounts, as indicated by the margin at the end of the circulation line, called Free Reserve.

The Reichsbank issues weekly statements, and also an ample and elaborate yearly report on its doings, expenses and profit. It also issues a book containing some thousands of names of its customers who keep current accounts at the head office and the branches, and thus enables firms to "clear" accounts with each other all over the country without cost. The question whether this freedom of publication is an advance in the science of banking might be decided by ourselves, who like to be at the head of advancement generally. The free fiduciary issue of other banks in Germany amounts to £5½ millions, of not less than 5*l.* per piece; the Government issues £6 million in smaller notes. The Reichsbank must take these notes in payments.

The National Bank of Austria has the next largest capital to the Bank of England, but if you look at the accounts you will find that the deposits are but very small. Their place is taken by mortgage letters (coloured dull red), which the public take almost as certificates of deposits bearing interest, against which the bank has granted loans on mortgage of land, &c. (coloured brown). In other countries, mortgages by banks are deemed unsuitable, for more than one reason, but in Austria, where borrowing on everything is the rule, the system is still maintained. The Bank of Austria probably holds the comparatively safest of this class of precarious security. The question of abolishing these mortgage items has been mooted more than once.

The bills discounted, and advances, form important parts of the assets, and considering the state of the valuation, the Government securities are moderate, the circulation of notes being covered to more than 50 per cent. by bullion (gold and silver in about equal proportions), and about £1 to £2 million of bills payable in metal (viz., bills on England). The Austrian par of exchange is florins 10·2 per *l.*, at which rate the accounts are converted, although the

actual exchange has run between florins 12 to $12\frac{1}{2}$ per *l.* But as the bank states its bullion at par, which adds about 20 per cent. more to the metallic cover on the present value of the bank notes, it seemed fair and suitable to convert the whole accounts at the par of exchange. This makes them larger by 20 per cent. than they are in actual sterling exchange, but as the accounts could otherwise not be balanced, and as the bank has so fair a portion of bullion, it seems entitled to the parity. Indeed, the depreciation of the Austrian exchange is not due to the issue and the management of the National Bank of Austria, but to the uncovered and uncertain note issue which the State itself makes separately. The fiduciary limit of the bank until now is 200 millions of florins, and the margin at the bottom of the diagram represents its reserve. The rates of interest in 1876 were 5 and $4\frac{1}{2}$ per cent. The impending change in the bank in relation to Hungary is about to take place.

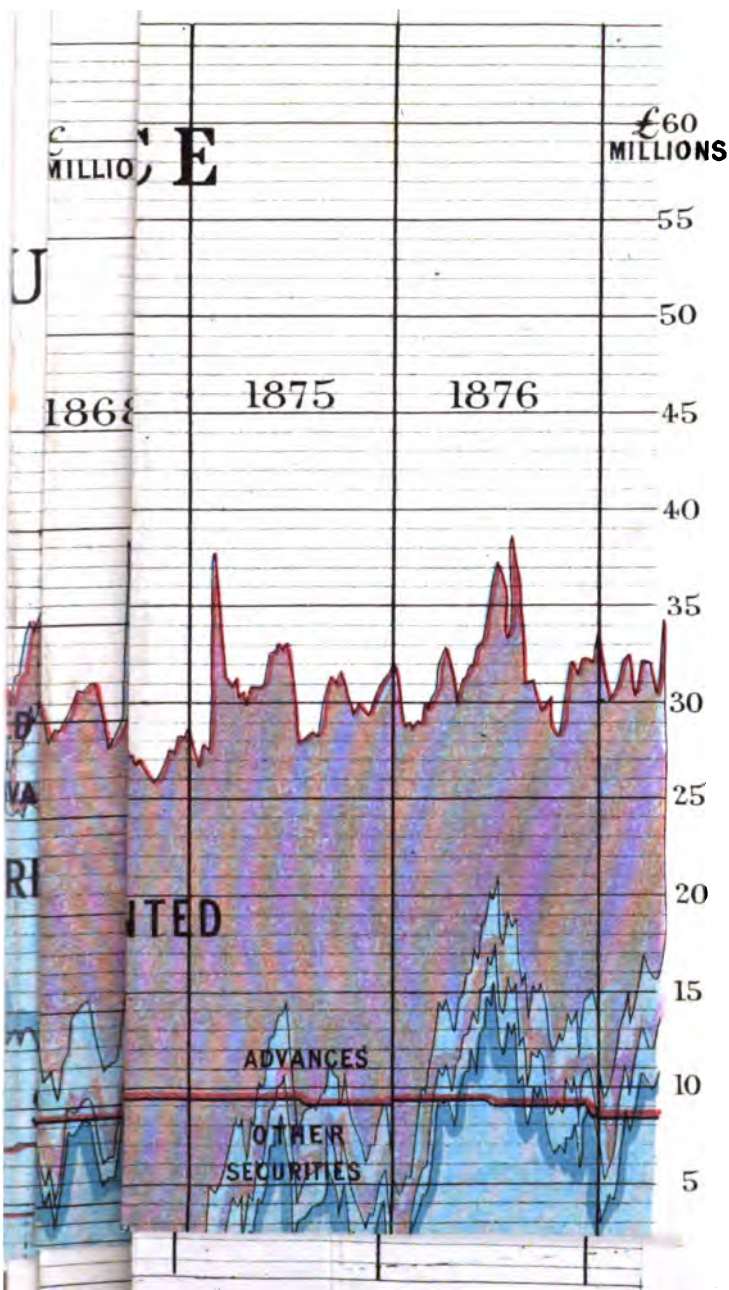
The Netherlands Bank, as the diagrams show, is a moderate and compact institution, holding no Government and other securities, but using its capital and deposits in bills and in advances. The careful Dutchman does not deposit in banks, but prefers investing his capital in international stocks of all kinds. The issue of the Netherlands Bank is covered with bullion to about 90 per cent., mostly gold, and partly silver. The law provides that the king shall determine the limitation of the issue, and in accordance therewith, it has been determined that for the liabilities in deposits, &c., and note issue combined (a junction between the two not found elsewhere), there shall be a minimum cover of 40 per cent. of bullion. The margin of reserve at the bottom of the diagram shows the issue which this solid institution had to spare during 1876. The rates of discount in 1876 were $3\frac{1}{2}$ and 3 per cent. No other bank in Holland has the right of issue.

The National Bank of Belgium resembles the Bank of Holland in extent, and holds mostly bills discounted, and very few Government and other securities. But as regards bullion there is a great difference, the bank holding a smaller proportion. The law determines that the issue of notes shall be covered by a minimum of $33\frac{1}{3}$ per cent. of bullion, but the finance minister has power to allow a further extension. The bank goes very close to this first liberal limit, and exceeded it at the end of the last, as well as during the present year. M. Malou, the present finance minister, informs me that he has no hesitation to allow such further issue, because among the bills discounted there is a considerable amount of bills on foreign countries, which in case of need have the same effect as bullion. This is true, but at the same time the actual amount of such bills ought to be continually stated, and on the whole, according to our notions and practices, the amount of bullion seems too small

in any case. The National Bank alone has the right to issue notes. The rates of interest were in 1876, $4\frac{1}{2}$, 4, 3, 2, 3, $2\frac{1}{2}$ per cent. The people in Belgium have great facilities of investing small sums in all sorts of small bonds of sound local and other undertakings.

The National Bank of Italy has a fairly large capital, of which a small portion is still unpaid. The deposits are small, but it must be borne in mind that it is a comparatively young institution, and that the former old banks of the divided States, such as the National Bank of Tuscany, the Bank of Naples, the Roman Bank, the Bank of Sicily (which also have note issues), and others, are powerful institutions in their way. The necessities of the State have caused a large over issue of paper, and the bullion held is small, but as this bullion is stated at par, I have, in spite of the depreciation of exchange, converted the accounts at the par value, as in Austria. The law of issue of bank notes in Italy has lately been altered to the following effect: The State, together with the National Bank and the six other issuing banks, withdraw their special notes, and "consort together for a total issue of 60 million "pounds of notes. These notes are *Biglietti consorziali*." The National Bank may make a total issue of these to £40 millions sterling, the others divide the balance. It will be seen that the National Bank has so far, in 1876, issued from £13 millions sterling to 16 millions, having the balance to spare by way of what may be called reserve of issue. The process of changing these notes is now going on; meanwhile a portion of the State notes or *Biglietti consorziali* appears as assets in the issue department against the special notes of the bank to be withdrawn. The rates of discount in 1876 were 5 and 4 per cent.

The State Bank of Russia looks large, like everything in Russia, swollen up by several unaccustomed items, and I have been sorely puzzled how to treat its accounts. These are published from time to time, sometimes with the accounts of the head office alone, then with that of the branches added, and sometimes the latter are debited by the former in a curious way. But what is most extraordinary, is the fact that the Russian Bank, instead of taking its bullion at the metallic par (like the other over-issuing banks of Austria and Italy), seems to take it at its paper value, and so increases the amount apparently. Having no means of verifying these rates, I have been obliged to convert the whole of the accounts at the London rates of exchange on Russia, so that the extent appearing represents the presumed metallic value of the accounts. The contraction in the accounts towards the end of the year is therefore due to the fall of the exchange. I must state, however, that this is not reliable, and altogether claim exemption as to absolute accuracy of these accounts, for the statements are so



complicated, and bear so much the appearance of what we call "cooking," that I had no other means of arriving at a fair representation of the case than by doing a little cooking myself as regards certain odds and ends.

The capital of the bank is the smallest of all great banks. It bears a superstructure of certain other liabilities (coloured pink); bills to order (dark red). At the top the State balances (dark red) show a rapid decline towards the autumn of the year; then follows downwards a strip of pink, as deposits without interest; another dark red, as deposits with interest. Below these, and above bills to order, follow about £30 millions (coloured dull red) marked "Accounts Bearing Interest," and "Special Accounts." What these are I do not know, and have been unable to ascertain. One, who ought to know Russian finances well, told me he believed they were fancy work, but I can hardly imagine what motive there could be for assuming such a liability for nothing. They may be loans by other banks or other institutions and persons; it is a pity that they are not more openly described. Besides the bills and advances shown in the diagram as assets, the whole balance consists of advances to the State, and State securities for the issue with 4 per cent. State notes, the bullion at the end (even if it has an actual existence) being but about 20 per cent. on the circulation. The rates of discount in 1876 were $6\frac{1}{2}$, 6, $7\frac{1}{2}$, 9, 7, and 8 per cent. The Bank of Russia divides its accounts into issue and banking departments, like the Bank of England, but states no express reserve, as the issue is at the will of the Government. There is a third department, concerning State and liquidation accounts, conducted for account of the State, independently of the former, from which a balance due to the bank is debited to the State in the banking department. This latter set of accounts is not included in the diagram, but the balance due appears as advances to the State.

I now come to the accounts of the Bank of England and France as specially represented by the second set of diagrams, giving these accounts from the year 1868 to 1876. In these, as shown, I give the assets chiefly, the liabilities of capital and deposits being indicated only by the red and black lines. The line of liability of circulation is the same as the lower line of bullion.

In glancing at these diagrams, it is needless for me to say much; you can all see what power the *Bank of France* has displayed. In 1868 to 1870 the principal assets were bills discounted. The bank makes advances on securities, but generally at a higher rate. Of Government securities, the bank held a sum of £6 $\frac{1}{2}$ millions, of which 4 millions were an advance to the State treasury, for which, however, no actual need existed then for either party. The

bullion held before the war amounted to £52 to 55 millions against the Bank of England's stock of £17 to 23 millions. Shortly after the outbreak of war in 1870, and on the first reverses, there was a withdrawal of bullion to the extent of £35 millions within a few days, the bank paying out without any hesitation. Then came the interval of the sieges when no accounts were published, until, when in 1871 peace was restored, the accounts opened with an immense circulation on a bullion basis of £27 millions. The large amount of first class bills then taken in, shows what amounts other bankers must have held. After the war and sieges the loss on these bills amounted to about quarter per cent., a proof of their quality. Specie payments had been suspended, but the term does not apply in its full meaning; all that was done was that legal tender rights were given to the notes, which hitherto they had not had, but which Bank of England notes always enjoyed, the practical difference being that the issue department of our bank is compelled to pay notes in gold, or suspend payment, and by so doing annul the legal rights, whilst the issue of the Bank of France was not compelled to do so. In reality, the suspension of specie payment was nominal, and when for a short time in 1873 the exchange in London was against France, plenty of gold came over, the premium lasting only a short time. For all the rest of the time there has been no opportunity of testing the suspension of specie payments, for the simple and most effective reason that the exchange has always been in favour of France, that gold streamed in and was not called upon for export, such export being the only real cause of suspensions of cash payments.

Mark, now, how the Bank of France, at first making large advances to the State for payment to Germany, and to satisfy the demands for replenishing the amount of currency by notes, gradually and steadily diminishes the Government securities and acquires bullion; until, at the present time, it has reduced the former to a comparatively moderate sum, and has covered its enlarged issue with 90 per cent. of bullion (one-fourth of which, by-the-way, is silver). During all this time, notice how it has assisted bankers and the community at large with discount of bills; and if you desire evidence of the contract and deposit power of the French, note how in 1872, when the large loan was brought out, the deposits suddenly increased by £34 millions, apart from the amounts paid in by the public to other bankers.

I say to you emphatically, that this astounding result ought to teach us a grand lesson. No plea concerning our peculiarities, no preconception as to the validity of certain economical doctrines twisted out of shape by practice, hold good against the facts here shown to you. That in the event of war, this country could do a

great deal, as it has done before (but it would be a painful struggle between the Bank and the commonwealth), I will allow. In France, the law simply fixed a limit of £128 millions to the total issue, and left the bank to carry out the great tacit principles of *firstly: not issuing more, either to the public or to itself* (as the Bank of England does from the issue to the banking department) *than absolutely required for circulation*, keeping the balance of issue in reserve (as shown in the diagrams); and *secondly: of reacquiring as much bullion as possible by poising the rates of discount*, so as to affect prices in favour of export, and in discouraging imports. The import of bullion was the direct consequence of this action. And this result has been achieved by rates of interest of 5, 6, 5, 6, 7, 6, 5, from 1871 to 1873, whilst in 1874 the rate fell to $4\frac{1}{2}$ and 4 per cent., last year to 3 per cent., and this year, for the first time in the history of the bank, to 2 per cent., for no other reason than that the bank has really acquired too much bullion.

I think that if you take into account our greater wealth and productive power, our greater solidity in social matters, you may allow me to start the broad suggestion, that the Bank of England ought to be a more powerful and effective institution than the Bank of France. I chafe at the fact that it is not so, and if you now look at the diagrams of the Bank of England for the same period you will see the case.

The *Bank of England* since 1844 has made scarcely any progress. In 1844, the total exports and imports of this country amounted to 125 millions; in 1873 they were 682 millions, or fivefold as much. In almost every branch of trade here and abroad, this fivefold prosperity has been responded to, excepting only the Bank of England, whose business is but little larger now than it was in 1847. This singular fact cannot be explained by such phrases as, the bank has become the bankers' bank, and kindred suggestions. The power of its 18 millions capital and rest is the same as that of other banking capital; the principles of the issue were in 1844 the same as now. It is said the competition of other banks and bankers has brought about the result, and "the Bank of England is more conservative." Conservatism must always be honoured; but here we find that our other banks and bankers have gone on increasing in accord with general prosperity. We may ask then whether this concurrence between them and the public is not rather the true conservative principle. When, however, as the case of the Bank of England shows, this conservatism is pleaded as an excuse for non-development, another term must be substituted for it. You may agree with me that when in any commonwealth such an important factor remains behindhand in the measure the Bank of England has done,

it must drag general progress, in spite of all protestations as to its other merits. The want of progress does not concern the bank's shareholders only, but is a matter of the highest public importance.

Sir Robert Peel, as his speeches show, anticipated a different state of things, a considerable increase in the bank's affairs, as the commerce of the country increased. I am of opinion that this want of development in the affairs of the Bank of England cannot be explained away by mere assertions, that it has a distinctly traceable cause.

I must now tell you that in submitting to you these diagrams for the purpose of giving information on the relative position of the great foreign banks, it is my special object to utilise them also, in order to demonstrate to you the *cause* which places the Bank of England into the abnormal position which it seems to occupy.

This cause arises in the issue department of the bank. We all know that Sir Robert Peel, by limiting the issue of notes on securities, intended to modify the fluctuations in bullion held by the bank, which led to the monetary disturbances before 1844. Strange to say, since then these fluctuations have been much more violent. We all know that ever since 1844 the Bank Act has been under discussion, that Royal Commissions have set upon it, that the literature on the question is most extensive, and that no result has been obtained. The conflicts which manifest themselves in our money-market and the frequent and violent changes in the rate of discount (those of the last nine years being more than one hundred), are subject to all sorts of explanations, more or less secondary in their nature. The impression prevails that nothing can be done with the Bank Act, that the Royal Commission inquiries and general discussion have exhausted the subject. You may therefore be prejudiced against me if I open the matter again, but permit me to state this: The point I am going to bring before you has never been mentioned before in any of the Royal Commission inquiries, has never been alluded to in the vast discussions and correspondence on the subject, and yet it forms an integral part of the Act itself.

The Bank Act provides that the Bank of England shall issue bank notes on gold, and on £15 millions of Government securities. The principle of such limitation by a definite amount of so much fiduciary issue is acceptable, and we may take it as agreed upon.

But how should this fiduciary issue be made? Should the £15 millions be issued at once, as the bank does now? I say no! and allege that "the present permanent issue of these notes is the sole cause of all the anomalies from which the bank and our money market are suffering. The issue of these notes should

"only be made *pro ratâ*, as the occasion demands, and should be "lessened again when the necessity for its use has ceased."

My first appeal in confirmation of this view must be addressed to the educated logician. In any combination between two factors, where the object is that of bringing about equal, or somewhat equal proportions, it is evidently wrong to use one of the factors at all times at its maximum or so to express it: as minimum and maximum continually; the very object in view must thereby be defeated, and the fluctuations in the other factor intensified. The logician requires no more in order to see my case.

I explain this more familiarly by stating that Sir Robert Peel established the limit of 15 millions of such issue, in order to secure the greater convertibility of the note, and a larger proportion of gold. In this the Act succeeded, although at certain times the so called suspensions, on account of insufficient bullion, took place. But this was not his only object. What troubled him more were the violent contractions in the bullion, and the high rates of interest, and he dwelled specially on his anticipation that the fiduciary limit would modify them. In 1847 he confessed that this was his chief object. Why has it failed? Common sense should tell us that if in this combined bullion and fiduciary issue it is *the bullion which is subject to contraction and expansion*, it is surely *wrong to keep the issue of notes on Government securities at the fixed figure*. On the contrary, it is this fiduciary issue which ought to contract and expand (within the limits assigned), so as to give bullion the better chance to remain.

Did Sir Robert Peel himself say that this issue of 15 millions of notes on Government securities should remain permanent, and are the directors of the bank bound thereby? One of the most remarkable cases of neglect or misunderstanding of written law can here be shown to you. Clause 2 of the Act, that which determines the principle and practice of the issue, says:—

"And be it enacted, that upon the 31st of August, 1844, there shall be transferred, appropriated, and set apart to the issue department, *securities* to the value of 14 millions, whereof the debt due by the public to the bank shall be deemed a part; and there shall also be transferred to the issue department so much of the *gold coin and gold and silver bullion* then held by the Bank of England as shall not be required by the banking department; and thereupon there shall be delivered out of the issue department into the banking department such an amount of Bank of England notes, as, together with the Bank of England notes then in circulation, shall be equal to the aggregate amount of the securities, coin, and bullion, so transferred to the said issue department of the Bank of England; and the whole amount of Bank of England notes then in circulation, including those delivered to the banking department as aforesaid, shall be deemed to be issued on the *credit of such securities, and coin and bullion* so appropriated to the issue department; and from thenceforth it shall *not be lawful to increase the amount of securities* for the time being in the issue department, save as hereinafter is mentioned; but it shall be lawful for the said

governor and company to diminish the amount of such securities, and again to increase the same to any sum not exceeding on the whole the sum of 14 millions, and so from time to time as they shall see occasion," &c.

Here then is a distinct and clear authority for the Bank of England to reduce any plethora of money, by a diminution of the "securities," and the diminution, I contend, means the re-transfer of these securities from the issue to the banking department, by such portions as the bank may choose, or even by the whole amount, if expedient, from time to time.

Why has it not been acted upon?

That the provision in question has not hitherto attracted the attention of the public, I have already mentioned. *There are few people who have ever read this Act.* And I may not be far wrong when I say that the listeners to or readers of this treatise, among whom may be several who have written and thought of the Bank Act, have never done so. At the Bank of England itself, it appears that the proviso has been considered, and that the conclusion as to its meaning was: that Sir Robert Peel contemplated this diminution to come into operation in the event of a total reduction of the circulation to the figure of 15 millions or thereabouts. In Sir Robert Peel's speeches there is no evidence whatever to this effect, but plenty to the contrary; he stated distinctly, when challenged on the point of future circulation, that he anticipated a large increase in it. A decrease of circulation would also be a gradual effect, to which the phraseology is quite unsuited, for this, in the words "diminish," "again to increase," from "time to time," is distinctly applicable not only to the frequent recurrence of the event, but also to its continual observance.

The question may here be asked: Why did not Sir Robert Peel himself insist more explicitly on this principle? Sir Robert Peel had been told that an average circulation above bullion before 1844 was about 11 millions, and I can quite believe that he imagined this ratio would continue, as generally he anticipated more regularity. He therefore attached less importance to the proviso, but I am satisfied that if he were now alive, he would, in five minutes' time, recognise the importance of the point, already provided for by what may be called at all events his instinctive wisdom.

In justice to the directors of the Bank of England, it is, however, requisite here to state that Clause 8 of the Act is, if not in conflict with Clause 2, at least incomplete. Clause 8 has no direct connection with the principle of the issue, it provides merely for the share of profit which the State is to derive from the privilege of issuing the 14 millions of notes on securities. It is worded:—

"Clause 8.—And be it enacted, that from and after the said 31st day of August, 1844, the payment or reduction of the annual sum of 120,000*l.*, made by

the said governor and company under the provisions of the said Act passed in the fourth year of the reign of his late Majesty King William IV, out of the sums payable to them for the charges of management of the public unredeemed debt, shall cease, and in lieu thereof, the said governor and company, in consideration of the privileges of exclusive banking, and the exemption from stamp duties given to them by this Act, shall, during the continuance of such privileges and such exemption respectively, but no longer, deduct and allow to the public from the sums now payable by law to the said governor and company, for the charges of management of the public unredeemed debt, **THE ANNUAL SUM OF A HUNDRED AND EIGHTY THOUSAND POUNDS**, anything in any Act or Acts of Parliament or in any agreement to the contrary notwithstanding: Provided always, that such deduction shall in no respect prejudice or affect the rights of the said governor and company to be paid for the management of the public debt at the rate and according to the terms provided in an Act passed in the forty-eighth year of the reign of his late Majesty King George III, intituled 'An Act to authorise the advancing for the Public Service, upon certain conditions, a proportion of the Balance remaining in the Bank of England for the payment of Unclaimed Dividends, Annuities, and Lottery Prizes, and for regulating the Allowances to be made for the Management of the National Debt.'"

The essence of this clause is that for the privilege of the issue of 14 millions, the bank shall give to the State a fixed sum of 180,000*l.* per annum. (As the sum has since been increased to 15 millions, the fixed sum is now 195,000*l.* per annum.) It must be evident to all, that this compromise, although perhaps agreeable to the Chancellor of the Exchequer as a regular item, is wrong in principle, for either the State or the bank must lose by it, and that the *pro ratâ* rule ought to prevail, especially in matters where nice adjustment is required. But as Sir Robert Peel, as before mentioned, imagined that the average sum of fiduciary issue in circulation would range at 10 to 11 millions, he did not deem it worth while to alter the amount. I am convinced that under the experience since gained, which shows that the fiduciary issue has ranged from minus 2 (1857) to plus 21 millions (1876), within a total range of 23 millions, he would have recognised the necessity of varying the profit of the State in accordance therewith. But as the Clause 8 now stands it is incomplete. The 180,000*l.* apply to the supposed full issue of 14 millions in Clause 2. Clause 2, however, contains also the proviso for a diminution of the issue on securities. Now whether this proviso bears the construction which the directors of the bank put upon it, as before mentioned, or that for which I contend, it is perfectly obvious that Clause 8 ought also to provide for a reduction of the State's profit with such possible reduction of the issue on securities. The omission is probably due to the draftsman of the Bill, and is more of the nature of a clerical error, which might be easily rectified. The matter might be so arranged that on the average the exchequer would receive the same sum, a suggestion to that effect lies near at hand.

And I say, that this rectification in Clause 8 is all the alteration

required in the Act of 1844, that everything else can stand as it is. Upon this the bank would, as a matter of interest no less than as a direction, act in accordance with the wording of Clause 2.

I bring the case at once so far in its theoretical and practical legal aspect, and doubt not that many require no more in order to lead them to the recognition of the truth. But there are others who will say, *firstly*, "If you thus reduce the issue on Government securities, where is our reserve?" In order to show what ought to be done, let me here give you a *pro formâ* account of the Bank of England, say at a time when the bullion is of the same amount as the notes in the hands of the public, and its full 15 millions of notes in reserve.

1. *Issue Department.*

<i>Liabilities.</i>	£	<i>Assets.</i>	£
Notes issued	43,000,000	Government securities	11,015,100
		Other securities	3,984,900
		Gold and silver bullion	28,000,000
	<u>43,000,000</u>		<u>43,000,000</u>

Banking Department.

	£		£
Capital	14,523,000	Government securities	15,500,000
Reserve	3,467,000	Other securities	14,000,000
Public deposits	5,500,000	Notes	15,000,000
Other "	21,000,000	Gold and silver coin	500,000
Seven days' bills	500,000		
	<u>45,000,000</u>		<u>45,000,000</u>

Here we find that 15 millions of Government securities are in the issue, and 15 millions of notes in reserve.

These notes are *actual legal tender money* created by the Act, and have all the attributes of an unemployed surplus of cash.

By "diminishing," as Clause 2 allows, the "securities" to the full extent, the account would become,

2. *Issue Department.*

<i>Liabilities.</i>	£	<i>Assets.</i>	£
Notes issued	28,000,000	Government securities	Nil
		Other securities	"
		Gold and silver bullion	28,000,000
	<u>28,000,000</u>		<u>28,000,000</u>

Banking Department.

	£		£
Capital	14,533,000	Issue, Government securities	11,015,100
Reserve	3,467,000	Issue, other securities	3,984,900
Public deposits	5,500,000	Government „	15,500,000
Other „	21,000,000	Other securities	14,000,000
Seven days' bills	500,000	Gold and silver coin	500,000
	<u>45,000,000</u>		<u>45,000,000</u>

But, it will be said, by this mere change of account you take away the reserve of notes. Yes, the mere change of account has this effect, as the Act on the 1st day of September, 1844, created that reserve of notes, and this shows that such a change of accounts has a definite, and not a fanciful effect. But although the reserve of notes has disappeared, there remains under Clause 2,

The reserve of issue of 15,000,000l.,

under which the Bank of England has the right “again to “increase” the issue of notes, within the limit assigned, or to “diminish again.” And I recommend that this issue be made only to the extent required for filling up the amount between the notes actually in the hands of the public and the amount of bullion held, and that the balance of the 15 millions be kept in unissued reserve. Thus, on the supposition, for instance, that there are but 22 millions of bullion to 28 millions of notes in active circulation, requiring £6 millions of the £15 millions of issue securities, the account would be—

3. Issue Department.

<i>Liabilities.</i>	£	<i>Assets.</i>	£
Notes issued	28,000,000	Government and other securities	6,000,000
	<u>28,000,000</u>	Gold bullion	22,000,000
			<u>28,000,000</u>

Banking Department.

	£		£
Capital	14,533,000	Issue, Government and other securities	9,000,000
Reserve	3,467,000	Government securities	15,500,000
Public deposits	5,500,000	Other securities	20,000,000
Private „	21,000,000	Gold and silver coin	500,000
Seven days' bills	500,000		<u>45,000,000</u>
	<u>45,000,000</u>		

leaving reserve of issue, 9,000,000l.

The "other" securities in the banking department have increased by 6 millions, let us say by "bills discounted." And so, whether there be 1, or 2, or 6, as here assumed, or 8 or 10 millions of the 15 millions of issue on securities required, would the account alter, and by increase or diminution it might be so carried on, and change from week to week, or day by day, always leaving the same margin of reserve of issue as is now done by reserve of notes.

The question may now be asked, what difference will this make, whether the securities are held in the issue or the banking department of the bank, they bear the same rate of interest or profit in either? The matter of method of investment and profit will be considered later on, in connection with the banking department, and the above question should rather be :

What difference will it make, whether the bank has reserve of actual notes or a reserve of issue? The difference is this: the reserve of notes now created consists of actual legal-tender money, in excess of what is required for circulation, and the low rates of interest adopted on account of its existence are the causes which drive away bullion. A reserve of issue, not consisting of actual legal tender notes, would not have this effect.

What is the use of the present often excessive reserve of notes? We hear so much of banking reserve, either as being too small or found wanting in some way or another, that we should at all events closely examine what is the truth, for there is no subject in regard to which such great errors exist as this. The phraseology current says: "We have so many liabilities, our business is so large, so many imprudent investments are made, and we have "but the small reserve of notes at the Bank of England." This phrase shows how thoroughly the subject of investment and reserve is misunderstood. The contracts which are made in the market in capital or banking money are entirely apart from the question of currency or bank notes and their circulation. No amount of actual cash in reserve can prevent the incurring of such bad contracts; they do not consume, nor do they require, circulating money, even in the event of crisis. The total amount of money circulating is, for the time being, a definite one. We here in England, after settling a great portion of our business by banking, bills, cheques, and clearing systems, require a currency, which is composed for the time being as follows:—

£	
105,0	millions of gold coin.
18,0	" silver and copper coin.
15,8	" country notes.
27,5	" Bank of England notes, against which (say) 22 millions bullion are held.

166,3

The country can use no more or less currency, unless by the natural expansion or contraction of population, prices, and business generally. In this composition of the currency, the Bank of England notes are the most variable, because not only does the bank virtually employ the mint, and its notes act as temporary stop-gaps, whilst gold is being coined, but the Scotch, with provincial banks, make well-known periodical demands for and returns of gold. Yet in spite of this greater variability, the circulation of the Bank of England note is fairly regular, increasing gradually, as from 1844 it has increased, from 21 to 29 millions in 1876. And what is more important than all, and perhaps not sufficiently known, is that even in times of crisis the public do not require more bank notes. In 1847 and 1857 the circulation remained on the same level. The panic, as far as it concerned the Bank of England note issue, was not due to more money required by the public, but to the loss of bullion by the bank. In 1866, during the extreme panic, it rose suddenly by 3 millions, but they returned immediately. If you have understood me in regard to the reserve of issue, you will perceive that variations of two or three or more millions of notes might easily be met by carrying out the true meaning of Clause 2. It will then seem singular to you that the Bank of England should keep reserves of idle notes, of 10, 15, or more millions, in the vague anticipation that some crisis may occur in ten years, especially when, as you will presently perceive, these heavy reserves are themselves the cause of the crisis in bullion.

Why should the bank, when the circulation of its notes for local purposes is limited to 21 or 29 millions, create notes issued of 36, 45, or even 50 millions? What is the use of making an "issue of notes" of 50 millions, when only 29 millions can possibly be used?

In order to show the whole case, I herewith give you the lowest and highest amounts of notes in circulation, and notes issued from 1845 to 1876:—

Table showing the Highest and Lowest Amounts of Bank of England Notes in Circulation, and Notes Issued from 1845 to 1876. In Millions.

	Notes in Circulation.		Notes Issued.	
	£	£	£	£
1845.....	20	to 23	27	to 30
'46.....	20	" 22	27	" 30
'47*.....	18	" 21	22	" 28
'48.....	17	" 20	26	" 29
'49.....	18	" 20	27	" 30
1850.....	19	to 21	28	to 30
'51.....	19	" 21	27	" 31
'52.....	22	" 25	31	" 36
'53.....	21	" 25	28	" 34
'54.....	20	" 23	26	" 30
'55.....	19	" 22	24	" 31
'56.....	19	" 21	23	" 27
'57*.....	18	" 21	21	" 27
'58.....	19	" 21	27	" 33
'59.....	20	" 22	30	" 34
1860.....	19	to 23	27	to 30
'61.....	19	" 20	25	" 30
'62.....	19	" 22	29	" 32
'63.....	19	" 22	27	" 29
'64.....	19	" 21	26	" 28
'65.....	19	" 22	27	" 30
'66*.....	21	" 26	26	" 33
'67.....	22	" 24	33	" 38
'68.....	22	" 24	32	" 37
'69.....	22	" 24	30	" 35
1870.....	22	to 24	33	to 37
'71.....	23	" 25	34	" 42
'72.....	24	" 27	36	" 40
'73.....	25	" 27	35	" 40
'74.....	25	" 28	34	" 39
'75.....	26	" 29	35	" 45
'76.....	26	" 29	35	" 50

* Years of crisis.

I trust that you will understand what I have here shown as regards the absolute requirements for notes, and the principle upon which the comparative regularity of this requirement rests. The absolute uselessness of the surplus may then be manifested to you. But does the evil rest there? Were it but this absolute uselessness the public could afford to laugh at it, but the Bank of England, having this "money" on hand, lowers the rate of interest, even down to 2 per cent., in the vain endeavour to employ it.

That this endeavour is vain, that the bank obtains less business the lower the rate goes, we all know, and if it placed the rate at 1 per cent., or less, it would be the same. And you will understand

that this curious position arises from nothing else than the rule under which currency matters stand, viz., the inability of the country to absorb more notes than it wants. And as the full measure of this ability must be reached at times of low rates, it follows that the very name of "reserve of notes" implies an absurdity. Yet the bank poises its rates in accord with it.

You will bear in mind that the above remarks refer to the use of the reserve of notes for *internal* purposes, those of our general *home* circulation, or home trade if you like; but there is the second, more important use, for the purposes of *international* trade. We may have to pay money abroad for loans granted by us, or for balances of trade, and gold may be withdrawn from the bank heavily. It is just upon these natural contingencies existing, for and between all nations, that the establishment of a *quasi* national bank, carried on under a public law a note issue on bullion and securities combined, becomes a necessity. Obviously then, in order to meet such more or less severe or temporary variations in the bullion there must be a reserve, i.e., something which for the time being can replace such bullion. Now if the present surplus of idle notes at the Bank of England is deemed to be such a reserve, I may possibly be abused as a heretic when I say to you: *This reserve of notes is not only no reserve at all, but it is the cause which ruins our reserve of bullion, and it is in reality the opposite, the destroyer of reserve!*

I appeal to common sense, if I ask you the following questions:—

1. Can the reserve of notes not wanted for circulation at home be used for exportation? You will agree that it cannot; what then is its use? Pray bear in mind we have already settled that it cannot be used for home purposes.

2. Does the reserve of notes *preserve* the bullion held in the bank, or does it *attract* bullion? You may not see any reason why it should do the former, but as regards the latter you may, at all events, have your suspicions.

I, therefore, tell you that this idle reserve does not only fail in preserving bullion, is the cause why bullion can never come to an equable level at the issue department, *but it deliberately compels bullion to leave.* Not only is this in accord with what I have said before this as to the principles of adjustment, not only can the simplest reflection on how contraction and expansion must be regulated, lead to this conclusion, but the actual operation itself is practically carried out by the rates of interest. Hitherto the Bank Act has caused discussion and inquiry when interest rose to 8 or 10 per cent., when the mischief was done. Nobody seems to think that this inquiry ought rather to take place when there is this plethora

of notes, when the rate is at 2 per cent. Yet then the foundation for the higher rates is laid. ■

These low rates deliberately invite, as before stated, the country itself to take notes, and at the same time the foreigner to take bullion. The former is futile, the latter only takes place. It can be shown to you by reference to the exchanges, that the low rates often take away bullion from us, in spite of the foreigners' indebtedness to us. At other times both the home and foreign trade resist the temptation, until the manifold contracts in both home and foreign commerce, enforced by such low rates, culminate and become tainted with speculation. Then, when a couple of millions of bullion at last go, comes the alarm, up goes the rate, losses on good and speculative business are incurred, and the noise of mutual recrimination and moralising begins over again. But it is not the extremely low rates alone which cause this mischief, they are founded on say 14 or 15 millions of idle notes, almost all the rates formed on lesser amounts must also be wrong in either direction, as those who understand the principle involved will readily admit. Hence the continual want of peace and the nervousness of our markets.

And it is thus that the Bank of England reserve of idle notes not only plays with the market at all times, but that it drives bullion away; and then when the reserve of notes itself might be wanted, it is found to have disappeared with it.

But, it will now be said: these variations in the rate of interest occur according to the rules of supply and demand, and further: bankers and other lenders not only follow the bank rates, but are generally offering to do business below them. The blind obedience to what are supposed to be legitimate and infallible results of supply and demand, has had a great deal to do with the errors committed. Formerly, also, the subject of money was not so well understood as it is now by our economists. We have begun to recognise that "money" may mean "coin or currency," or "capital, banking money," and that these are totally different things in contract as well as in substance. The connection between them is but conditional and indirect. Here, as regards the Bank of England issue, the rate is raised on behalf of a portion of one-sixth of our currency; viz., say 27 millions of Bank of England notes out of the total of 166 millions current, irrespective of bankers' deposits and investments in the market. In order to show this, I submit the following statement:—

Accounts of Nine Joint Stock Banks at the End of June, 1866 and 1867.

	30th June, 1866, Bank-rate 10 per Cent.		
	Liabilities.	Reserves.	Bills and Advances.
	£	£	£
London and Westminster....	22,637,000	3,465,000	16,578,000
Union	21,261,000	1,800,000	16,817,000
Joint Stock	20,390,000	1,191,000	18,129,000
London and County	14,114,000	2,149,000	10,410,000
National	10,570,000	1,382,000	4,615,000
City	6,130,000	561,000	5,224,000
Consolidated	4,363,000	1,404,000	3,138,000
Alliance	2,734,000	423,000	2,213,000
Imperial	1,786,000	244,000	1,518,000
	103,922,000	12,619,000	78,642,000

	30th June, 1867, Bank-rate 2½ per Cent.		
	Liabilities.	Reserves.	Bills and Advances.
	£	£	£
London and Westminster....	23,531,000	2,718,000	17,160,000
Union	19,702,000	1,700,000	14,173,000
Joint Stock	16,299,000	1,600,000	13,569,000
London and County	14,955,000	2,284,000	8,937,000
National	8,073,000	869,000	5,700,000
City	4,690,000	503,000	3,819,000
Consolidated	3,231,000	492,000	2,428,000
Alliance	2,477,000	317,000	2,060,000
Imperial	1,709,000	273,000	1,360,000
	94,667,000	10,756,000	69,206,000

Accordingly, when the rate was 10 per cent., these banks had more “money” and more “reserve” than when it stood at 2½ per cent.

Then why does the market follow the bank-rate, why does it not hold a uniform rate of its own, independently of the Bank? You may be aware that the majority of our country bankers adhere to a uniform rate of 5 per cent. at all times, but it is not my purpose to say that London bankers should do the same, the rate of interest must vary according to several contingencies; what I contend for is, that as far as the market is concerned, it would not vary so extravagantly and suddenly if the bank did not take the lead in this. The market must follow the bank, for this reason: whenever the latter raises its rates, bankers are not only naturally disposed to make larger profits, but they are forced to follow. For if one of them held lower rates, he would of course be soon overwhelmed with business. And so it has become an axiom, one like so many which are had recourse to in the confusion, that bankers

must follow the Bank of England's rising rates. Hence it has become an axiom to say: the rise and fall in the rate of interest is a matter of common natural agreement or "market value," against which it is useless to say anything. Latterly, however, we have seen that whilst the bank raised the rate to 5 per cent., the bankers combined so as to remain at 3 per cent., and thus by combination the above axiom has received its practical denial.

As far as low rates are concerned the market is still more bound to follow the Bank of England. Then the bank competes against the whole banking community. If at such time bankers endeavoured to hold a rate as high or higher than the bank, it follows that the latter would discount the day's bill, say for argument's sake 3 millions. It would pay for these with 3 millions of its sole note reserve, but would this bring 3 millions of notes into circulation? By no means, the bankers, having missed the bills, would have 3 millions to spare, and pay them into the bank, *ergo*, the circulation would remain at its level, and the Bank of England would have discounted 3 millions with the additional *bankers' balances*. Among the many matters which prove that the public have an interest in the affairs of the Bank of England, this has a special claim, and bankers should reflect upon it.

The fact that the bankers and others *at all times* hold their rates below the bank rate, is explained through the same cause. Unless they do so they are at all times subject to have their deposits captured by the bank. This unnatural process could not take place if the reserve of notes were converted into a reserve of issue. Other causes for the fact that rates of interest in the market must naturally be somewhat under the rate of the central issue bank of a country, lie in the competition to which the market, apart from the bank, is subject. There is also always a stratum of money coming in, or seeking employment, which is offered before it is incorporated with bankers' balances. This is the case also in the banking centres of France, Germany, and elsewhere, but the central banks always maintain a standard for the time being, and the market falls back upon this when this intermediate stratum has been exhausted.

From 1844 to 1876 the number of changes in the rate of interest have been 245—those during the last seven years being 95. The range of these rates may be stated as from 2 to 10 per cent. In raising and lowering these rates, the management of the bank is influenced occasionally by other considerations, by failures, wars, and, as at this time, for instance, the demands of Germany for gold; but on the whole, the "Reserve of Notes" commands the situation. This command seems to be so imperative, that it actually defeats the action of the bank in regard to the above-

mentioned contingencies. During the first years after 1844, the bank allowed a little more latitude, but experience seems to have led to greater severity, until at this time, the withdrawal of a half-a-million of gold, or 2 to 3 per cent. on the stock on hand, leads to a rise of 1 or 2 per cent. on the rate—as recently, from 2 to 3, and 3 to 5 per cent. in a few weeks.

Throughout these oscillations, it will be found that the low rates are the initiating ones, either in their extreme of 2 per cent. or in their intermediate stages. If they could be modified, we should have a better hold on bullion on the one hand, and on the other hand, by avoiding extremely high rates, avoid also the too abundant attraction of bullion, which always takes place; besides which the number of changes would be less than now.

That we must have variations in the rate for the purpose of regulating the bullion in the bank, no one knows better than myself. One well acquainted with the laws of exchanges, and watching daily what goes on, can measure the infallible mechanical effects of these forces, and regrets that they should be so utterly perverted and actually turned “against” the object in view, as is the case under this false and destructive system of reserve. The practice shows that with the utmost variations in the rate (for 2 per cent. and 10 per cent. may be regarded as such), there are still the utmost possible variations, and that there is just an escape with occasional suspensions of the Act. But if this system of reserve is altered, it will be found that the movements in the rate, and with them the level of bullion, will become more steady—and if, by way of general proposition—an extremely low rate of 2 per cent. initiates a large number of variations up to 10 per cent., I may be entitled to state that a minimum rate of 3 per cent. will cause less variations up to 5 or 6 per cent.

I am of course prepared to hear again: What is the difference whether the amount of reserve left is in *notes*, or in *reserve of issue*, and how will this latter bring about a lower minimum rate? Having convinced you, as I trust, of the destructive nature of the reserve of notes, permit me here now to say:

That the reserve of notes is created by a transaction entered into many years ago on Government and other securities, say at 3 per cent. interest; and that the interest value of “money” thereby created, is no longer a matter of much consideration, but under the reserve of issue, requiring the transfer of Government securities to the issue department at the time of the demand, the immediate consideration involved would be that of a higher rate of interest than that attached to the issue securities.

Those who understand the connection between these matters, and are willing to construct Clause 2 as it ought to be constructed,

will at once see this point; but in the following portion of this paper, the subject may be made more evident.

I now come to the banking department of the Bank of England. You are aware that by the Act, it is separated from the issue. You are also aware that a great deal of discussion prevails on this "separation." The one party says that the separation is complete; that the issue is the "public," the banking the "private" department; and certain axioms are formed on the notion that the one has nothing to do with the other. Sir Robert Peel himself did not say this, although he provided for the separation of the accounts. Other people say the separation is a mere matter of fancy, and that the two accounts might be merged into one.

I agree with the latter, and as I have shown in the diagrams, the foreign banks (excepting that of Russia) follow this plan. Nevertheless I say that the separation of accounts between issue and banking may well be maintained, if Clause 8 of the Act is carried out as here suggested, for it would then always show the exact state of the issue, namely, the notes actually in circulation against bullion, and the requisite amount of securities for the difference between circulation and bullion. Any discussion then as to this separation is superfluous.

I now submit to you the account of the Bank of England of the 1st September, 1875, which happens to represent the state of things with the 15 millions of notes in reserve. This account is interesting also for the purpose of showing again the play with bullion. You will see by the diagram that at the beginning of the year the rates were 5 and 4 and $3\frac{1}{2}$ per cent., the bank and bullion rose, the bank then went down to 2 per cent., and bullion disappeared again rapidly. The account is as follows:—

Weekly Statement of Bank of England, 1st September, 1875.

<i>4. Issue Department.</i>			
<i>Liabilities.</i>	<i>£</i>	<i>Assets.</i>	<i>£</i>
Notes issued	43,332,520	Government securities	11,015,100
		Other securities	39,84,900
		Gold bullion	28,332,500
		Silver „	—
	<u>43,332,520</u>		<u>43,332,520</u>
<i>Banking Department.</i>			
	<i>£</i>		<i>£</i>
Capital	14,533,000	Government securities ...	13,591,139
Rest	3,680,640	Other securities	18,369,782
Public deposits	4,093,998	Notes in reserve	15,043,430
Other „	25,010,195	Gold and silver coin	695,778
Seven days' bills, &c.	362,296		
	<u>47,700,129</u>		<u>47,700,129</u>

There were accordingly in circulation 28,289,090*l.* of notes, and according to the last parliamentary returns, on the 1st September, 1875, the bankers' balances were 12,515,000*l.* Of the Other securities in the banking department on that date, 4,467,000*l.* were bills discounted, and 1,990,000*l.* temporary advances.

I must mention that in this account the bills discounted and temporary advances are somewhat larger than they have been at previous occasions when the 15 millions were in reserve, when bills were as low as 2 millions, and temporary advances at half-a-million. I much regret being unable to give an account of 1876; but as already stated, the Bank of England has refused to Parliament to give the returns of bills discounted for that year.

I will now restate this account (in round figures for convenience). The Other securities in this issue are also Government securities, and may be joined to the debt into the one amount of 15 millions. The bankers' balances and bills discounted and advances (as taken from parliamentary returns on that day) will be stated separately. The account would then be:—

5. Issue Department.

	£		£
Notes issued	43,300,000	Government and other securities	15,000,000
		Bullion	28,300,000
	<u>43,300,000</u>		<u>43,300,000</u>

Banking Department.

	£		£
Capital	14,553,000	Government securities	13,600,000
Reserve	3,667,000	Other securities	12,100,000
Public deposits	4,100,000	Bills	4,400,000
Other „	12,400,000	Advances	1,900,000
Bankers' balances	12,600,000	Notes in reserve	15,000,000
Seven days' bills	400,000	Coin	700,000
	<u>47,700,000</u>		<u>47,700,000</u>

I may now ask your permission to set aside the item of 15 millions of notes, as assets in the banking department, and to deduct 15 millions of the “notes issued” as liability in the issue department. We are of course all aware of the discussion as to liability on one side being made an asset on the other, but we may for once look at the real liabilities and assets in *one* account, especially as you are aware that I myself shall recur to the separation of issue from banking.

The Government securities in the issue department would then

be joined to those in the banking, and as capital and rest may also be thus added together, the account would be :—

6. *Issue and Banking Departments.*

<i>Real Liabilities.</i>	£	<i>Real Assets.</i>	£
Notes in circulation	28,300,000	Bullion	28,300,000
Capital and rest	18,200,000	Government securities	28,600,000
Public deposits	4,100,000	Other securities	12,100,000
Other „	12,400,000	Bills	4,400,000
Bankers' balances	12,600,000	Advances	1,900,000
Seven days' bills	400,000	Coin	700,000
	<hr/> 47,700,000		<hr/> 47,700,000

The notes balancing against bullion, a look at the other assets may lead us to think that 28,600,000*l.* of Government securities is rather a large item. Of these Government securities the 15 millions from the issue were acquired or purchased long ago ; of those in the banking department a small portion is said to consist of exchequer bills, the rest are also purchased. But large as the amount seems, it is not all. The 12,100,000*l.* Other securities are also purchased. A small portion may represent the house properties of the bank, all the rest are stated to be colonial, railway debentures, or other stock, including perhaps mortgages. No information whatever is afforded on the point, and the bank must not wonder if people think that there may be even more unsuitable banking securities than mortgages. But let the 12,100,000*l.* consist of such stocks as above mentioned, and let them be almost as “good” Government securities themselves, what I want to show here is that they are not *current* securities such as bills and advances. And I am consequently entitled to call the whole of the Government and other securities (not bills and advances) *purchased stock*, by way of distinction.

Against the following liabilities of the Bank of England there would be the following assets :—

	£
Liability to shareholders	18,200,000
„ depositors	29,100,000
„ on seven days' bills	400,000
Against	
Asset of purchased stock	40,700,000
„ bills discounted	4,400,000
„ temporary advances	1,900,000
„ coin	700,000

We find accordingly that the Bank of England not only invests its capital and rest in stocks, but of the 29,100,000*l.* of other people's money, including 12,600,000*l.* bankers' balances, no less

than 22,500,000*l.* are also so invested. And against this the bank offers to the public the 15 millions of notes in reserve, which, as I have shown you, are *utterly unacceptable and unnecessary for the circulation*. This is so when the bank, according to the above account, is at its best as regards strength, but when even this reserve diminishes by withdrawal of bullion, say to one-half, we see high rates of interest and approach panic, which now-a-days would be at its height with 5 millions of this kind of reserve.

I do not belong to the class of pessimists who by way of grievance are fond of predicting a coming failure of the bank, for as we all know, the bank would not only pay 20*s.* in the pound to noteholders, depositors and shareholders, but the Government would come forward as it has done before; but the question is whether "such things should be."

I hold that in the first place, banking capital should not be invested, or appear invested in Government securities. Now we know that the State has borrowed £11 millions from the bank, and that this forms a part of the security for the £15 millions of note issue above bullion. Although this violates the principle, and although it is often recommended that the State should pay back this debt, let us nevertheless pass over this item and accept this £11 millions as a *fait accompli* confined to £11 millions only.

But when we find that besides this £11 millions as original Government debt, and a further £4 millions of so-called Other securities (but also Government securities) in the issue, there are further much larger amounts in the banking department; when out of £29 millions of deposits, no less than £22½ millions are virtually invested in such fixed securities, I say that this is a most improper and dangerous state of things. In a trading community like this, the current balances and reserves should not be locked up in this way. Sarcasm might say that if the bank can do no more than this, the depositors might so invest their funds themselves and earn the interest thereon, instead of the bank. It might be suggested, for instance, that bankers who keep £122 millions of balances, which the bank invests chiefly in fixed securities, should withdraw these and keep them at the clearing house, investing £6 millions in consols, and keeping £6½ millions in cash. It would certainly pay them well, and give them a reserve of their own. I say deliberately, that the Bank of England, by its present system, utterly perverts the banking reserves of this country. I presume that it is not necessary here to enter into a discussion as to the relative goodness or safety of Government securities and stocks *versus* bills. Our first class bills occupy the first rank; and if this country should ever suffer from a general decline, the Government securities will have become inferior long before bills. Bills continually discharge them-

selves, and a bank having a good stock of them can always rely upon a cash income from them day by day; they are also contracts for definite amounts. Government and other stocks "lock up" money, and this can only be released by a spasmodic contract for their sale, involving inconvenience and loss. And in the event of a crisis and generally depressed market, their realisation is most difficult or even impossible.

Permit me now to say this to you: We have, since 1844, witnessed many surprises as regards the Bank of England. Whatever may have caused the crisis of 1844 and 1857, we were amazed at the rapidity with which the bank lost bullion, and the suspensions of the Bank Act. Matters were then brought to the "verge," and the situation was just saved by high rates of interest, acting on bullion from abroad. In 1847, the bankers' balances ranged between 1 to 2 millions; in 1857 between 2 and 3 millions. In 1866 we had greater difficulty in obtaining bullion, for France had become a powerful holder; bankers' balances were then at from 4 to 6 millions. Even then the question was mooted whether bankers and others, instead of keeping their balances at the bank and actually increasing them, should not withdraw them. At the present time Germany has joined the claimants for gold, and other States are going to do so. In the event of a great crisis here, these countries will defend themselves, and I anticipate that it will be more difficult for us to obtain gold from abroad than before. I foresee that in the next coming conflict or crisis for gold, the Bank of England may again put the rate at so high and impracticable a figure, that the market is bound, as was recently the case, to dissent from it. At such a time, bankers instead of allowing the bank to invest their balances in Government securities, may *really* withdraw them, so as to act independently of the bank. What the effect of this will be on the bank, when at the same time that institution is in distress for bullion, I must leave you to judge. Do not let us plead here in an indefinite way, the bank will not let it come so far, or some means will be found to avert this. What I have said to you, may not only appear probable to you, it is, in my opinion, inevitable before long.

It cannot be said that this over-investment in Government securities and other stocks, is a matter of deliberate policy on the part of the bank. It is true, allowance must be made for the bank's habit of dealing in Government securities before 1844; and for the acquisition of Other securities which are not bills and advances, the bank may plead that it has the duty and the right to support certain other interests. Although other great banks abroad do not hold this view, and think that banking capital and resources ought to be

employed in bills, yet we may here concede to the Bank of England, that to a certain extent it can plead its old habits and policy. We need not therefore forbid the bank not to invest in Government securities and other stocks, but when we see the over-investment in them is so prodigious, we can no longer admit such a plea. That this is not a question of superior goodness of such securities over bills and advances, the Bank of England itself admits. It is always ready to take bills, and in times of crisis even, when bills are not quite so reliable, will take very large amounts. It has frequently reduced, or attempted to reduce, the Government securities in order to be able to take bills. It has actually sold them at a loss, and has even borrowed money on them, so as to be able to discount bills.

That this is not a question of scarcity of bills is proven by these very transactions. One of the governors of the bank, in answer to a question as to the paucity of bills held by the institution, led the questioner to infer that this was a mere matter of supply and demand, and that bills were scarce. The fact is, the bank cannot take the bills excepting against bullion, for it is crammed with these stocks. It need only succeed in selling, or in borrowing on the latter in order to obtain the means of discounting, and that this is not a matter of supply of money in the market is evident, for if the capitalist had not advanced his money to the bank on the fixed securities, he might have discounted the bills himself.

Our market offers a choice of all sorts of securities, the greater portion being bills. Deducting from the national debt and colonial and other stocks such portions as are held by public institutions, families, and individuals by way of investment of fortunes, which absorbs the great bulk of the total, there remains a residuum *afloat* in the market held by bankers, by the Stock Exchange, and others, for what may be called purposes of business. This residuum is available together with the general mass of bills and advance business, and with it forms an aggregate of a more or less definite amount. Including what is held by the Bank of England, the amount of such Government securities in the open market may be stated at 75 millions. The bills current, even at the present depressed time, may be stated at 150 millions. Now whether these figures are strictly correct or not, it must be evident to all, that the latter are by far the more frequent and the more suitable security. I then may state nothing extravagant, if I say that the Bank of England, instead of holding 40 millions of Government and other stocks, and but 4 millions of bills, should hold say 20 millions of the former, and 22 millions of the latter, or more or less.

What then is the cause which seems to force the bank into this over-investment in Government and fixed securities? *The true*

cause is again to be found in the extremely low rates of interest engendered by the present system of reserve of notes.

When the rate is at 2 or $2\frac{1}{2}$, and Government securities at 3 per cent., and Other securities at higher rates up to $4\frac{1}{2}$ per cent., are available, it follows that the bank prefers to invest in them. The market being always below the rate, the bank even invests increasing deposits in more Government securities. A reference to the accounts will show that the Government and Other securities (not bills) have thus gradually increased, keeping pace with the deposits, whilst the margin left for bills has scarcely altered. There are certain variations in the amounts, dependent on movements in Exchequer bills and other claims. The bank, as before stated, has also from time to time sold Government securities, and for the purpose of meeting dividends and other payments, a certain degree of movability has been maintained, but throughout, the general *increase of these purchased securities* holds good. It is obvious also that the various more or less serious attempts of the bank (influenced no doubt also by the varied views of successive changes in the court of directors), to part with a portion of such purchased securities, were defeated by the extreme variations in the rate, as it involves contradiction. For when the rate is at 2 and $2\frac{1}{2}$ per cent., the proper time for selling Government securities at a good price, the 3 per cent. interest they bring, deters the bank from selling. On the other hand, when the rate rises, Government securities fall in price and their sale entails losses. Although the bank has submitted to them on several occasions, it must necessarily object to them. The whole business has therefore drifted into its present position, and is accepted as a matter of fate.

A secondary cause arises from this position. The Bank of England loses control over the discount market, or rather, such control as it is entitled to, because it is such a weak participator in the business. As I have stated, the small stock of bills of a couple of millions frequently consists only of discount granted to current account customers which are not strong enough to discount outside, and for weeks and months the bank is separated from the great discount business of the market. From this generally limited stock, 60,000*l.* to 100,000*l.*, may fall due per day, and this is so small, that bankers and others may take it up from the odds and ends in their bills, from the "between stratum" of money before mentioned. But if the bank held a stock of 22 to 25 millions of bills, of which 800,000*l.* to 1,000,000*l.* fell due per day on the average, its control and influence would be quite a different thing. The bank could then insist upon parting again with the cash received on its own more effective and independent terms only.

I trust that I have succeeded in showing to you that the two great anomalies from which the bank suffers, viz., the *insecurity of the bullion in the issue*, on the one hand, and the *peculiar method of investment of the deposits in the banking department*, are due, in the first instance, to the extremely low rates of interest. Connected with these two anomalies are a variety of other incongruous matters which confuse our market, but space is wanting here to trace them. I contend now that in the same way as the carrying out of Clause 2 according to its wording will cause a more equable state of bullion level in the issue, so will it give a different complexion to this business of the banking department. You will recollect that under this clause the reserve of notes would disappear, the issue liabilities would be simply the amount of notes in circulation against bullion, and such of the securities as would be required to fill up the difference. I now repeat the previous account, but ask permission to leave out bills and advances, on the assumption that the bank had invested everything in Government securities and Other securities. The account would be:—

7. Issue Department.

	£		£
Notes in circulation	28,300,000	Government securities	—
	<hr/>	Bullion.....	28,300,000
	28,300,000		<hr/>

Banking Department.

	£		£
Capital.....	14,533,000	Government securities	28,600,000
Rest	3,667,000	Other securities	18,400,000
Public deposits	4,100,000	Coin	700,000
Other „	25,000,000		<hr/>
Seven days' bills	400,000		47,700,000
	<hr/>		<hr/>
	47,700,000		

Reserve of issue, 15,000,000l.

It will be readily admitted that if with this position the bank is not anxious to get rid of bullion by putting the rate down, there is no need whatever for going below the rate of 3 per cent. which is that of the Government securities. Supposing then that more notes were required for circulation, or what is practically a similar thing, that bills were offered for discount for the withdrawal of bullion to the extent of 3 millions. Having a reserve of issue of 15 millions, of which, according to Clause 2, it can make use by increasing or diminishing the securities in the issue, the bank would say: *We have invested our funds in securities at a*

minimum rate of interest of 3 per cent., if you will give us more than that rate, we will bring our reserve into action, place 3 millions of securities into the issue, and take your bills into the banking department.

The account would then appear, i.e., in the event of reduction of bullion, as:—

8. *Issue Department.*

	£		£
Notes in circulation	28,300,000	Government securities	3,000,000
		Bullion.....	25,300,000
	<hr/>		<hr/>
	28,300,000		28,300,000
	<hr/>		<hr/>

Banking Department.

	£		£
Capital.....	14,533,000	Government securities	25,600,000
Rest	3,667,000	Other securities	18,400,000
Public deposits	4,100,000	Bills discounted	3,000,000
Other „	25,000,000	Coin	700,000
Seven days' bills.....	400,000		
	<hr/>		<hr/>
	47,700,000		47,700,000
	<hr/>		<hr/>

*Reserve of issue, 12,000,000*l.**

But now the problem may be started, suppose a banker withdraws say £3 millions of his balances. This would mean a decrease of 3 millions in the Other deposits and an increase of £3 millions in the circulation of notes, the one liability would be given up against the other, and the account. The bank would simply transfer £3 millions more of its securities to the issue, and pay the banker. It is needless to say that the latter, unless he wants to amuse himself by holding £3 millions of notes idle in his till, would not pass these notes into circulation, *ergo*, it is likely that he would soon pay them back again. The case would be simply one of temporary increase of circulation, and be treated on the same principles.

Now whether there is an increase in the circulation simultaneously with a decrease in bullion or withdrawal of deposits, whether there are already bills discounted and temporary advances, so as to render the account say as follows:—

9. *Issue Department.*

	£		£
Notes in circulation	29,300,000	Government securities	6,000,000
		Bullion.....	23,300,000
	<hr/>		<hr/>
	29,300,000		29,300,000
	<hr/>		<hr/>

Banking Department.

	£		£
Capital.....	14,533,000	Government securities	21,900,000
Rest	3,667,000	Other securities	12,100,000
Public deposits	4,100,000	Bills discounted	9,000,000
Other „	23,000,000	Temporary advances	2,000,000
Seven days' bills	400,000	Coin	700,000
	<hr/> 45,700,000		<hr/> 45,700,000

Reserve of issue, 9,000,000l.,

I contend that the 9 millions of bills and the 2 millions of temporary advances, should not have entered the banking department *unless at a rate higher than 3 per cent.*, that all contingencies, withdrawal of bullion or increase of circulation through discount of bills or withdrawal of deposits, might hinge upon this minimum rate. And this contains the principle and the true practice under which an issue so constituted ought to be handled.

Examine now whether there are any contingencies which would induce the bank to lower the rate below 3 per cent. The first is the suggestion that bullion might exceed even the amount in circulation, as has been the case occasionally. As the deposits cost the bank nothing, and as this surplus bullion does not increase the expenditure of the issue, I do not see that the bank need lower the rate, it may as well allow the bullion to drift away, as surely it will, without pressure. But, it will be said here, the bank should not allow the bullion even to be at the level of the circulation, for then it makes not only no profit on the issue, but loses the expenditure. This question must now be closely examined. It can be shown that now the bank loses more than 120,000l. on the issue. But if Clause 8 is amended in the way I suggest, there would be, at the full cover of bullion, no fiduciary issue, and consequently the payment to the State of 195,000l. would be suspended for the time. There would remain then the technical expenditure of the issue, which may be stated at 180,000l. per annum. Several items are included in this 180,000l. which do not properly belong to it, and the arrangement generally confers great economy on the banking department, which would not otherwise be the case. Assuming that 150,000l. be the true cost, it would follow that the bank thus has at its disposal a reserve of 15 millions, which cost it 1 per cent. per annum. And this in itself is a prodigious advantage over all other banks, with which the Bank of England might be well satisfied.

I am well aware it might here be said, the Bank of France has adopted the rate of 2 per cent., and maintained it for a long time. True, but the Bank of France's position is a most exceptional one.

It held upwards of 90 millions of bullion (against the 27 millions of the Bank of England), and besides this, the exchanges continue so strongly in favour of France, the loss on its note issue becoming so serious, that bullion had to be got rid of at all costs. Were we in England in the same position, I do not mean to say that we might not also adopt a lower rate than 3 per cent., but in the ordinary practice this should not occur. The question involved is in reality one of fair bullion level to be arrived at. It must be borne in mind that in the above accounts I have assumed the full amount of bullion for the circulation, in order to simplify the matter. I take the 100 per cent. bullion, as a starting point, it is the safest level of bullion, but it may be conceded that 90, or 80, or 75 per cent. are practically as safe for the conversion of the bank note. It would be for the bank itself to determine the point at which, from time to time, it may deem it prudent to uphold the percentage of bullion. Those who watch the accounts must be aware, for instance, that during the last two or three years the bank, in view of the German demand and general doubt in the market, has wisely aimed at a comparatively higher level than before. At a level of 75 per cent., for instance, in a circulation of 28 millions, would give a margin of 7 millions, and the interest earned on this would be amply sufficient to cover the expenditure. And as we all know, the bank is not actuated by sordid motives, and as other great advantages will arise from this to both bank and the public, I have no doubt but that the bank will prefer some surplus of bullion.

On the whole, however, it will be understood that if the very low rates are avoided, there will be no need for extremely high rates. These high rates, by their violent action, cause the violent over attraction of bullion, although at other times (as at present) slackness of international trade may contribute to the return of bullion here. Under the less spasmodic action which the proposed practice will engender, these extremes will be also avoided, and a better general level can be relied upon.

Whether then, as I have assumed above, the bullion be 100 per cent. or less, the rule that 3 per cent. should be the minimum rate remains the same.

The open market may then go to any figure of interest below 3 per cent. without the bank being in the least compelled to follow it. I have explained why the market rates must always be somewhat below the bank-rate; why, according to the intermediate stratum of money, the market rate may fall lower by competition among the lenders. When this stratum is exhausted, they must revert to the bank. But, it may here be asked, when the bills held by the bank run off, how will it obtain new bills when the outside rates are lower? Here the difference between borrowing and

banking money will become more than ever apparent. You are aware that the circulation of Bank of England notes for the time being is an absolute factor in the general system which brooks no diminution. A certain definite amount must be had. Now if out of the bank's stock of bills, say 3 millions fell due, and notes to that extent came into the hands of the bank, out of a circulation of 28 millions, leaving 25 millions, the 3 millions would again be required *à tout prix*. The bank would consequently say: "If you want the 3 millions of notes back again, you must give me first-class bills, and you must pay me at least 3 per cent. interest." In fact, the bank might say: "You outside people make all sorts of contracts in money's worth, whether such money's worth be in stocks, in goods, in ships, in apples, or oranges, and call this the money market. By certain arrangements, I am made chief agent for the supply of current money, and especially privileged by law for the supply of notes. I am the contractor for British currency; you may do what you like among yourselves, but if you want British currency (gold for export or notes for circulation), you must give me at least 3 per cent. interest for it, and as much more as I may deem proper for its protection."

And here I bring back to you the important principle of "consideration" involved, which under the present system, was lost long ago by the immediate investment of the 15 millions in the issue, whereas, by the proposed plan, this "consideration" would be continually alive, and would be used so as to suit the reality of the moment, and the possible altered state of the times generally.

The statement of accounts which I last submitted to you shows that there were as assets:—

	£
Government securities	23,900,000
Other securities	12,100,000
Bills discounted	9,000,000
Temporary advances	2,000,000
Coin	700,000

with a reserve of issue amounting to 9,000,000*l*.

Now, although this shows an improved state of things as regards bills, yet it may appear to some that a total amount of 36 millions of purchased securities is still very large, and there would be (referring to Account No. 9) 6 millions Government securities in the issue. In fact, as you recollect, the statement was founded on the assumption that almost the whole of the assets were of this character. The suggestion might now be made, that the bank should sell say 5, or 10, or more millions of such fixed securities when prices are suitable. Having done so, what would the bank get back again? Would it be obliged to offer cheaper rates for

bills? I maintain, upon what I have shown before, that through the right of issue the bank could insist upon having bills at 3 per cent. or at such a rate above it as it would deem expedient.

The question then arises, how much in Government and other securities shall the bank keep? I trust no one thinks me presumptuous enough to prescribe anything of the kind, but I may be permitted to point out that if we adhere to the limit of 15 millions of notes not founded on bullion, and that these should be covered by Government security, a total amount of 15 millions would practically suffice. That the bank would hold more occasionally results from its dealings with the State. The bank's investments in colonial, railway, and other matters are a delicate matter to deal with, but I should say that the amount might be reduced. Permit me, therefore, to suggest that an account as follows might represent what I may call a "fair" state of matters:—

10. Issue Department.

	£		£
Notes in circulation	28,000,000	Government securities	5,000,000
	—	Bullion.....	23,000,000
	<u>28,000,000</u>		<u>28,000,000</u>

Banking Department.

	£		£
Capital.....	14,533,000	Government securities	13,000,000
Rest	3,667,000	Other securities	10,000,000
Public deposits	5,400,000	Bills discounted	23,000,000
Other „	16,000,000	Temporary advances	3,300,000
Seven days' bills.....	400,000	Coin	700,000
	<u>50,000,000</u>		<u>50,000,000</u>

*Reserve of issue, 10,000,000*l*.*

Rate of interest, 4 per cent.

It is understood of course that this account may greatly vary. There may be more notes in circulation, more or less deposits, &c. I am satisfied that besides the greater peace in our money market, the Bank of England itself would make much larger profits.

For the purpose of showing the altered state of things in a graphic form, I have prepared a diagram headed

Illustrations of Action.

Under the present interpretation
of Clause 2.

Under the proposed interpretation
of Clause 2.

and ranged a number of accounts under cash heading. On the left side, No. 1 represents a fair state of matters at the bank with

9 millions of idle notes, and interest at 4 per cent. No. 2 shows how increase of deposits leads to a partial increase in purchased securities and bills. No. 3 shows an increase in bullion and reserve, a corresponding decline in bills, and a rate of 2 per cent. No. 4, the rapid decline in bullion and spasmodic increase of bills with interest at 10 per cent. No. 5 shows how, at such times, the bankers' (and other) deposits increase, and how the bank itself discounts more bills with their balances. No. 6 shows the rapid accumulation of bullion, the sudden great rise in the reserve, and the decline of interest again to 2 per cent., and the withdrawal of the assistance the bank has had through more deposits. No. 6, shown as a broader strip, then shows the state of account, when the whole 15 millions are in reserve, and the bills at their usually low state, and interest again at 2 per cent. Under "Proposed Interpretation of Clause 2," the broad strip No. 8 now represents the state of accounts, showing the issue securities in the banking department. This real state shows the overwhelming mass of purchased securities in blue, and the small margin of bills and advances at the top. This is the state when the rate of interest ought not to be below 3 per cent. At the bottom, the red line shows the reserve of issue, apart from the account, as the extra item of asset above the others, for the case of need or "occasion." No. 9 demonstrates how the disposal of 10 millions of fixed securities, out of the 42 millions, and the withdrawal at the same time of 5 millions of bullion, would place the same amount of Government securities into the issue, increasing bills, on a rate possibly of 4 per cent. Nos. 10 and 11 show the disposal of another 10 millions of fixed securities, leaving 22 millions, and carries the action on with more deposits. No. 12 shows a rise of bullion to full level and diminution of bills, the rate reaching its minimum of 3 per cent. again. No. 13 shows a presumed withdrawal of bullion, a rate of 6 per cent. and more bills. No. 14 finally shows the increasing business, and a fair state of future accounts at rates between 3 and 4 per cent. A thorough investigation of what is at work in all this may show that these diagrams do not rest on mere assumptions. They give a fair representation, although rates and amounts may differ in actual practice, and according to the circumstances of the moment; but they clearly show the margins of independent reserve of issue left, the more regular state of bullion and interest, and the naturally larger acquisition of active business in bills and advances, still leaving a good stock of Government and Other securities. It is my opinion that if Clause 2 is acted upon, there will be even better results than are here hinted at by these diagrams.

It may be necessary for me here to allude to the transfer of

the securities between the issue and banking department, so as to avoid this matter being made a point to cavil at. Originally these securities were "transferred" from the banking to issue, and their diminution and "increase again" within the limit of 15 millions naturally implies the same process. I do not know whether the bank keeps the 3,987,100*l.* "Other" issue securities in a special cupboard, but the 11,015,100*l.* Government debt is a book-debt, and cannot be so locked up. Many people have suggested that the Government should repay this debt, or convert it into consols. Neither is necessary; it is not a vital point at all, and as we agree that some such amount as 15 millions might be kept in Government securities at the bank, the "passing" of the whole, or part of them, becomes a matter of book-keeping in such a form as will satisfy the "separation" of the issue from the banking department.

Those who are willing to understand the whole case, may now also see that although the limit of £15 millions of note issue on securities is assumed here as being sufficient, yet that there might be no harm, if in accordance with increase of population and other matters, that limit was increased to £17 or £20 millions: not that this is asked here, for the whole Act is to remain as it is, Clause 8 only requiring amendment, but at some future time the question of more allowance might be raised. The great secret lies in the words: *Do not use your issue allowance at once, from the very beginning, but only so much of it as is absolutely required, holding the rest intact as issue in reserve*, and when this principle is acted upon, the "limit" is in reality a matter of secondary consideration.

I now venture to ask you to review what I have laid before you in reference to the Bank of England, and whether I have with some degree of consistency, concentrated my case upon the nice point involved. The whole problem of the Bank of England issue has been fought over ever since 1847. The wildest schemes have been suggested by way of substitute for it. Painful inquiries having led to no result, and the principles of the Act, in its limitation of the issue, being thoroughly sound, the majority of thinking and prudent men, in their faith in these principles, have come to the conclusion that nothing more can be done, whilst the practice of the directors of the bank has settled into a distinct form, wherein their wisdom does the best that can be done. Yet every day shows us that there is something that does not fit. It is the case of a splendid piece of machinery with a flaw in one apparently unimportant part. I take this stand-point, and instead of proposing some heroic revolutionary remedy, I say to you, the Act is perfect in its way—amend only Clause 8, so as to set free this hitch as to Clause 2. I am satisfied that the logician and mathematician will at once under-

stand that which is involved in the fault of keeping an allowance intended to regulate its accompanying factor at the same amount at all times, as minimum and maximum combined so to speak. Others may appreciate this matter from what I have said respecting contraction and expansion. As to the practical effects, "the difference this would make," both as to bullion, and the different results in the banking department, I may have furnished material enough to convince others of the validity of the matter.

Supposing then that this validity were recognised to some extent, and that Clause 2 itself required amending. Leaving the limit at 15 millions, would it not be a prudent thing to say: This is our limit, we cannot go beyond it, for at *certain* times even this limit may be too much, and utterly defeat the object aimed at? Let us therefore amend Clause 2, so as to make the issue pliable, and a still greater safeguard. But as I have shown, this amendment is not necessary, for Clause 2 already contains this proviso for "diminution," and "increase again" in distinct words, which cannot bear any other construction than that here put upon them. I then point out to you that Clause 8 is in conflict with Clause 2, and ask that this be amended only. And even if you ignore all that has been said in reference to the principles involved, I claim that this ought to be done as a mere point of order, so as to supply what may be called a clerical omission on the part of the person who drafted the Act, for the "diminution" in Clause 2—however remote it might appear—whatever different construction others may put upon it, ought to be followed by a proviso for diminution in Clause 8. I suggest then that for the words of Clause 8, beginning with "And be it enacted, &c.," and ending with "the annual sum of 180,000/.," there be substituted, "And be it enacted that from and after the
 " day of , the payment of the annual sum of 180,000/.,
 " made by the said Governor and Company under this clause heretofore, shall cease, and in lieu thereof, in consideration of the privilege of exclusive banking, and during the continuance thereof, but no longer, the said Governor and Company shall deduct and allow to the public from the sums now payable by law to the said Governor and Company for the charges of management of the public debt, a sum of money equal to the rate of $2\frac{1}{2}$ per cent. per annum on such amounts of notes issued on securities from the issue to the banking department, under the provisions of Clause 2 of this Act, from week to week (or day by day?)." Any other rate than 2 per cent. might be determined upon.

This then is the point which in this splendid machinery requires adjustment. The question might be asked: Is there any absolute need for this; cannot the bank carry out Clause 2 without reference to Clause 8? It would be most unfair to demand this,

for there should be a clear motive of interest in all such matters. But there is a more weighty reason why Clause 8 should be so amended. Be it frankly stated, that among the directors of the bank there are several leading gentlemen, who during the thirty years of existence of the present system have become so orthodox as to the personal and other practices involved, that they are likely to refuse to "see" this case, and if asked by the Government, may pooh-pooh the matter. If the Government rose superior to this, and amended Clause 8, it would not in the least lay itself open to the charge of interfering with the policy of the bank directors; it would leave them the option, and it is but reasonable to suppose that they would see the profit and loss, and act in accordance therewith. The Government would do no more than set right a law, and by so doing it would perform legal and easy, but also a graceful service, for the purpose of helping the whole of this business over the style. The budget would not suffer from this change, but would derive more from the average of its share, and the bank's greater profit would soon be manifest. But far beyond this, our money market would become more peaceful, the mutual relations would be better understood, and our commerce become more regular. Indeed, as our money market leads that of the world, there would be greater peace and greater regularity in the foreign markets, to the better advantage of our own interests. I conceive that at this time especially, when the international valuations are undergoing a kind of revolution, when the conditions under which balances of trade have hitherto arisen, appear to operate in different directions, we ought to apply all our fair science and common sense towards the refinement and better adjustment of the important subject here under consideration.

DISCUSSION *on* MR. SEYD'S PAPER.

MR. R. B. MARTIN said he should like to ask Mr. Seyd whether any of the foreign State banks, whose statistics were exhibited, received money on deposit at interest, because if they did so, it would make a very great difference in comparing their position with those banks that did not do so. Of course everybody was aware that there were two great functions of banking: the one was the keeping the current accounts for customers, paying the amount of their balances against cheques, and making a profit out of the average amount of permanent balance. The other, which had sprung up in England in comparatively late years, was that of largely receiving money on deposit at interest. The convenience of this system was very great, and enabled persons wishing temporary employment of a sum of money to receive back the identical sum with a certain amount of profit on it, without finding that it was like stocks, or even Government security, liable to fluctuation in value; so that the interest his money had earned him might be taken away by depreciation of the capital when he wished to realise his security. All joint stock banks had developed this to a very large extent. The Bank of England had not done so; and of course this consideration would make the greatest difference in the figures in any comparative table of the Bank of England, whether compared with joint stock banks in England or with the foreign State banks, if they receive money at interest or transacted business of a decidedly different character. There was another question he should like to ask: that was, as to the profits made by the Bank of England, compared with those of other similar banks. He would ask whether the Bank of England had given its shareholders an equal, a greater, or less profit per cent. than banks of a similar class in other countries.

MR. NEWMARCH, F.R.S., delivered a speech of some length in reply to Mr. Seyd's paper. Mr. Newmarch most fully admitted the labour and ingenuity displayed by Mr. Seyd, but he dissented entirely from the argument and conclusions of the paper. Mr. Newmarch did not consider that the Act of 1844 in the least admitted the new reading proposed. And supposing the new reading to be admitted, Mr. Newmarch was quite unable to see that it would give the relief which Mr. Seyd set forth so elaborately.

The Rev. Mr. DOXSEY, referring to the difficulty pointed out by Mr. Newmarch, that a bank in a time of panic would have in meeting a cheque for $3\frac{1}{2}$ millions, when it had only 500,000*l.* of bullion, said that if he understood Mr. Seyd aright, he would meet the difficulty by transferring 15,500,000*l.* of Government securities to the asset column in the issue department; and upon that he would have a

right to issue 15,500,000*l.* of notes. He would then transfer them to the banking department; and instead of Government securities he would put as one of his assets, 15,500,000*l.* of notes. There would then be no difficulty in meeting the cheque for 3½ millions, which would be obtained in notes. If the notes were wanted to obtain bullion, they could be sent back to the issue department, and the gold and silver bullion would be exchanged for notes and cashed out of the 28,000,000*l.*; so much as was necessary being transferred from the issue department to the other department. It seemed to him that Mr. Newmarch's admirable speech had not in this point invalidated Mr. Seyd's conclusions. The course he had indicated would furnish the reply he would adopt if he were in Mr. Seyd's position.

Mr. GIFFEN said that the last speaker had overlooked that in the case supposed the bank would be dealing with the account as if it remained in the old form, whilst Mr. Seyd was arguing for a new state of things. He wished to call Mr. Seyd's attention to one or two points which he desired to be cleared up in reference to the diagrams. One was with reference to the Bank of England refusing information as to its discounts and advances. He thought that Mr. Seyd had attacked the Bank of England very severely on this point. There was also an impression abroad that the Bank of England had not given to the House of Commons that information which Mr. Seyd alleged had been asked for many years, and he also assumed that that information had been asked for last year; but—for what reason he (Mr. Giffen) could not tell—last year the House of Commons did not ask for the information as to those discounts and advances. The Bank of England may say, "We made a return as far as the House of Commons wanted, although not a complete return of the discount and advances: it has not asked for them." Mr. Seyd conveyed the idea that the Bank of England had refused to obey the order of the House of Commons; but this was not the fact. The other point he wished to remark upon was Mr. Seyd's comparison of banking in this country with that of foreign countries. He had represented quite truly that the amount of wealth in the respective countries was not to be measured by the extent of banking. So far, there was a much larger amount of money in proportion in the hands of banks in this country than there was in foreign countries; but Mr. Seyd held that in foreign countries there was much more banking as compared with banking in this country than was sometimes supposed. In one part of the paper it was stated that in London there were eighteen joint stock banks, with 14 millions of capital and thirty-six private bankers: in Paris there were twenty-one joint stock banks, with 16 millions of capital, and twenty-six large private bankers. He should like to ask Mr. Seyd whether those figures really gave any idea whatever of what banking was in London at the present moment. Did he include in these eighteen joint stock banks any of those numerous Anglo-foreign and Anglo-colonial banks? There were between twenty and thirty such, many of them having large deposits and doing a large business. In a comparison between England and France and other countries, that

wonderful growth of provincial banking which obtained in this country, and to which there was nothing similar in continental countries, ought to be taken into account. The other curious point was, that there were no statistics in the paper as to the banks in the United States. Although there might not be in the States a State bank, there were certainly national banks, as to which a great deal of information was obtainable from the comptroller of the currency. The national banks in New York, according to the American banking law, were in a special position, and the aggregate of them might be treated specially for this purpose. He thought that Mr. Seyd would have added very much to the value of his diagrams if he had given some information as to these American banks. He had only to add the expression of his admiration as to the manner in which Mr. Seyd had given his information.

Mr. SEYD, in reply to the several questions, stated that the diagrams exhibited the various amounts of deposits on which the banks either paid interest or not. The greater part of the deposits of the Reichsbank are balances free of interest. The Austrian bank has but few deposits, the mortgage letters issued, on which interest is paid, take their place. The Bank of Russia does not state what portion of the accounts to its debit carry interest. As to the profits of these banks, they were, generally, larger than ours. In 1856 and 1857 the Bank of France paid a dividend of 27 per cent. It was the most independent of all banks, and paid a tax on the issue of notes, but the State does not otherwise share in the profits. On the note issue there is now a loss. The Reichsbank first pays a fixed rate of $4\frac{1}{2}$ per cent. to the shareholders, then after adding 20 per cent. of the balance to reserve fund, the rest is divided between shareholders and the State. In the United States there was no central bank, and although some kind of statement might have been made from taking all the banks together, yet nothing like unity of action, so important in the question of valuation, could be demonstrated therefrom. The American treasury had its own sphere of action apart from the banks. To give the example of a single State bank, whose issue was under the Federal law, could serve no purpose. As regards the refusal of the Bank of England to give the amount of bills discounted, Mr. Giffen was right in saying that the return had not been asked for by Parliament, but the matter amounted to almost the same thing. The member of Parliament who last moved for the returns, was told by the Chancellor of the Exchequer, that the bank would refuse to give these items in future, and that he could not compel it to do so, unless by bringing the matter specially before the House. Whatever construction might be put upon this, it remained a singular fact that the bank should act in this way. As regards the main question here under consideration, viz., the Bank of England's issue under the Act of 1844, and that which he had laid before them, the only strong opponent seemed to be Mr. Newmarch. Mr. Newmarch did not seem to follow his meaning, but if he (Mr. Seyd) had had the opportunity of reading the rest of his paper, he would have explained many matters which must now remain in abeyance

until the paper had been fully read, and several of the points alluded to would have been made clear. He trusted that those present would not be influenced by the mere sayings, complimentary or otherwise, uttered by Mr. Newmarch: phrases such as "finding a mare's nest," and "going on a wild goose chase," prove nothing, and are not statistical; figures must be used. Mr. Newmarch had endeavoured to back such phrases by going into figures, and as they had heard, and as he (Mr. Seyd) had anticipated, Mr. Newmarch had got himself into a muddle. The gentleman opposite, Mr. Doxey, whom he had not the pleasure of knowing previously, seemed to have fully understood the case, and had practically rebuked Mr. Newmarch for him. In reference to the quotation from the paper made by the latter gentleman, as to the distinction between a reserve of notes, and a reserve of issue, which many seemed to have misunderstood, he (Mr. Seyd) maintained that the great evil from which the banking interest suffered, was the great variation in the rates of interest caused by the difficulty which the bank had in retaining a sufficient or more regular level of bullion in the issue, and that this was chiefly owing to the unduly low rates of interest and the general uncertain effect of the totally useless and mischievous surplus of notes, falsely called "reserve," which drove bullion away. Mr. Newmarch had stated that the whole of the Act of 1844 had been considered over and over again in Sir Robert Peel's time, and since. No doubt it had; but in all the discussions at the time and after, there did not appear, beyond that which he (Mr. Seyd) had referred to, any allusion whatever to that part of Clause 2 referring to the diminution of the issue when occasion arises. That Sir Robert Peel himself was not very clear in his mind on this point, had already been stated, and he was obviously misled by the supposition that the circulation of notes on securities would not depart greatly from an average of 11 millions. Mr. Newmarch was not entitled to say that the subject had been fully discussed, and as the reports were available, he ought to have furnished evidence to that effect. However, we had to deal with the law as it stood, and whether it was Sir Robert Peel's doubt which originated the words in question, there they stood in Clause 2, as evidence at all events of his instinctive wisdom. They bear no other construction than that here put upon them, and he (Mr. Seyd) earnestly requested the full reading of his paper so as to bring this point out and its effects more clearly. In conclusion, Mr. Seyd again urged the full reading of his paper and the consideration of the diagrams upon those present. The point was a subtle one, but the whole problem appeared to depend upon some such subtlety.

What are the CONDITIONS on which the COMMERCIAL and MANUFACTURING SUPREMACY of GREAT BRITAIN DEPEND, and is there any REASON to think they have been, or may be, ENDANGERED? By A. J. MUNDELLA, ESQ., M.P.

[Read before the Statistical Society, 19th February, 1878.]

IN the remarkable paper read at the last meeting of this Society, Mr. Giffen demonstrated the steady growth of the capital of the country during the present century, more especially illustrating the vast increase of the national wealth in the ten years ending with 1875. There can be no more conclusive evidence of our commercial and industrial success, as a nation, than the fact, incontrovertibly established, that the accumulated savings of that period amounted to the prodigious sum of 2,400 millions, being an average of 240 millions per annum. During the past three years, however, our trade and manufactures, in common with those of every other industrial community, have been suffering from depression, gradually increasing in intensity, and resulting in a marked decline in the value of our exports, as compared with the unprecedented expansion of the three preceding years. Although this depression is universal, and of even longer duration and greater severity in many other countries than in our own, there is, as is usual at every such period, a recurrence of the alarm that our trade is leaving us, that our prosperity has passed its summit, and will henceforth decline. We have grown so accustomed to our pre-eminence, that any new evidence of foreign enterprise, or any fresh indication of successful foreign competition, excites our fears. It would be easy to recall many instances of these periodical alarms during the past thirty years. In my own experience, I cannot recollect a time of depression when this anxiety as to the stability of our trade has not shown itself. So far back as 1848, German competition was the dread of our manufacturers of textiles, hosiery, and small-wares. More recently we were startled by the contracts of Messrs. Schneider, of Creusot, to deliver a number of locomotives to one of our large railway companies—a contract which was never completed, on account of the great loss it entailed. Belgian coal, iron, and calico; American machinery, hardware, and cotton-cloths, have all played their part in turn, have all in succession contributed to our alarm. In the majority of instances our fears have been entirely groundless. Not a single

cargo of Belgian coal ever reached this country, although largely advertised for sale; more American cottons have been made in the neighbourhood of Manchester than have been imported, and in nearly every instance the fact of this competition has been greatly exaggerated and its cause wholly misunderstood. The effect of our free-trade system is to make England the *dépôt* market of almost every article of commerce, and in periods of depression abroad, to attract to it the cheap and surplus stocks of other countries. And not the least of its advantages is to bring under our immediate notice whatever foreigners can supply cheapest and best. It adds to our information, stimulates invention and enterprise, prevents us from diverting our capital into wrong channels, and lapsing into false security. That we have attained pre-eminence in manufacturing industry is universally admitted; that we have accumulated, as the result thereof, unprecedented wealth, has been abundantly proved. What we have now to consider is the conditions of this material prosperity, and whether they are abiding or transitory.

Before entering upon this inquiry, it is desirable to notice a theory which has been advanced by two eminent economists, as to the character and duration of the present commercial depression. According to M. Georges de Laveleye, the present crisis is different from all former economical crises; to use his own words, it is *une crise définitive*. He means, in short, that this crisis is not merely a period of momentary suspension, after which the preceding animation will reappear with fresh ardour, but that there is a danger of its continuing (though lessening) for very many years. This opinion is shared, in some degree, by M. Leroy Beaulieu, and has been expressed by them in the "*Moniteur des Intérêts matériels*," a Belgian publication, and in the "*Economiste Français*." They argue that thousands of millions have been spent upon the creation of fresh mechanical apparatus; that railroads, canals, gasworks, waterworks, factories, steamships, and improved machinery of all kinds, have absorbed an enormous amount of capital, and employed a corresponding amount of labour; and that the plant and machinery called into existence by modern invention and modern civilisation having been supplied, the field of employment of both capital and labour will in all probability be greatly curtailed for many years to come. If there is any truth in this theory, competition will be much severer in the future than in the past, profits will be lower, labour will be worse remunerated, and there will be an absence of that multiplication of great fortunes which has been the characteristic of the last thirty years. In such case the race will be to the swift and the battle to the strong, and the weakest in material resources will first go to the wall. But I confess myself unable to agree with the conclusions of these eminent economists. I think they have failed to make sufficient

allowance for the effect on the future of the progress of invention, the discoveries of science, the increasing wants and the improving tastes of the whole human race. For these there is neither pause nor end, and it may be said of them, "increase of appetite hath grown by what it fed on." The causes of the present depression are neither deep-rooted nor obscure, and will, in my opinion, with the return of peace and confidence, speedily pass away.

The circumstances to which we owe our commercial and manufacturing supremacy may be classed under two heads. The first would comprise those advantages which have been conferred upon us by nature; the second, those which we have, in whole or part, created for ourselves. Under the head of natural advantages I should place (1) our cheap and abundant supplies of coal and iron; (2) our excellent geographical position, and (3) our climate, which is so conducive to continuous labour. Under the second head (1) the cheapness and abundance of capital; (2) the efficiency of English labour; (3) our great hold upon the carrying trade; (4) our colonies; (5) our sound economic system, *i.e.*, free trade.

Assuming these to be the conditions of our industrial and commercial predominance, I proceed to inquire what is the bearing of each upon the general question, and whether there is any reason to apprehend that anything has occurred, or is likely to occur, which may endanger such predominance as a whole. Undoubtedly our manufacturing supremacy, which is of comparatively recent growth, is based upon our cheap supplies of coal and iron. That these are *exhaustible* is uncontested; but whether the period of exhaustion is so remote as to render it unnecessary for the present generation to occupy itself with the question, is a point that has been much disputed. In the remarkably able work of Mr. Stanley Jevons, on the "Coal Question," published in 1866, he maintained that, at the present increasing rate of consumption, we should very soon have to face this difficulty. I give his conclusions in his own words:—

"I draw the conclusion that I think any one would draw, that *we cannot long maintain our present rate of increase of consumption; that we can never advance to the higher amounts of consumption supposed. But this only means that the check to our progress must become perceptible within a century from the present time; that the cost of fuel must rise, perhaps within a lifetime, to a rate injurious to our commercial and manufacturing supremacy; and the conclusion is inevitable, that our present happy progressive condition is a thing of limited duration.*"

But this statement is based upon the theory that the consumption will increase at the rate of $3\frac{1}{2}$ per cent. per annum, which would give the following results:—

In the Year	Consumption at the Assumed Rate of Increase.
1861	83·6 millions of tons.
'71	117·9 "
'81	166·3 "
'91	234·7 "
1901	331·0 "
'11	466·9 "
'21	658·6 "
'31	929·0 "
'41	1,310·5 "
'51	1,848·6 "
'61	2,607·5 "

The report of the Royal Commission in 1871, and the experience obtained in subsequent years, have allayed the apprehensions aroused by Mr. Jevons's treatise. Mr. Lowthian Bell, Mr. Samuelson, Mr. Hussey Vivian, and nearly all practical men, are confirmed in the belief that our coal supply will be abundant for the wants of a steadily expanding trade for some centuries to come. In the appendix I have given some very interesting tables, for which I am indebted to Mr. Robert Hunt, the keeper of the Mining Records. These show the production of coal from 1660 to the present time; and Table E, which gives the production for ten years ending 1886, shows, *notwithstanding the five years of unprecedented demand and excessive inflation* of the coal and iron trades, that the rate of increase was only $2\frac{1}{2}$ per cent., instead of $3\frac{1}{2}$ as anticipated by Mr. Jevons's calculations. 7

Table F shows the progress of the economy of coal in the manufacture of pig iron. Within seven years we have increased the make of pig iron by 1,110,000 tons, with a decreased consumption of coal of nearly 800,000 tons. This will be found on comparison of the years 1869 and 1876. Nor have we, in the opinion of practical men, approached the limits of economy.* Not only is it believed that great saving of fuel can be effected in the manufacture of iron, but recent discoveries point to the manufacture of steel by a direct process, which will result in increased economy combined with much greater durability.

There is one market which has absorbed a large proportion of our iron manufactures during the past ten years, now practically lost to us, and there is no reason to expect that under any change of circumstances it will be recovered. "Of the entire production of iron in the United Kingdom for the year 1871, it may be said "roughly that one-half was exported to foreign countries, and of

* In 1876, 2 tons 3 cwt. of coal was consumed in the production of a ton of pig-iron. Mr. Lowthian Bell, in his evidence before the Coal Committee appointed by the House of Commons, in 1878, stated that his own firm had already reduced the consumption to 2 tons.

"this half, the United States of America received one-fourth, or "something like 750,000 tons."* From the report of Mr. Lowthian Bell on the Philadelphia Exhibition, I make the following extract:—

"The rapid installation of about 75,000 miles of railway in the United States, at a period when its production of iron and steel was incompetent to meet the enormous demand for these articles, rendered large importations a matter of necessity. Practically the country which kept up the requisite supply was Great Britain. So recently as 1871, the weight of rails brought from abroad into the States was 565,701 tons; in 1875 it had fallen to 18,258 tons. The total quantity of rails, pig, and iron of different kinds imported since 1871, has been as follows:—

1871	1,185,483 net tons.
'72	1,224,144 "
'73	608,923 "
'74	248,576 "
'75	141,079 "

"The value, including cutlery and other imports of iron and steel, has receded from above 9½ millions sterling in the first of these years, to almost exactly one-third of this amount in the last."

This great diminution of imports is not, in Mr. Bell's opinion, attributable to high protective duties alone. "Our exclusion" (he says) "from the American market, was preceded by the panic which began to manifest its approach in 1873, and for which the iron masters there assert 'congress was largely responsible.' It encouraged the building of railroads which were not needed, by giving to railroad companies millions of acres of the public land. The building of these railroads has led to the building of furnaces and rolling mills."† And according to the Report of the American

* Mr. Lowthian Bell, "Journal of the Iron and Steel Institute," No. 1, 1875.

† The following summary, from "The Chicago Railway Age," 3rd January, 1878, affords strong confirmatory evidence on this point:—

Railways Sold under Foreclosure in the United States in 1876-77.

Year.	Number of Companies.	Mileage.	Capital Stock.
1876.....	30	8,846	\$ 218,000,000
'77.....	54	8,875	198,984,400
	84	7,721	416,984,400

In addition to the foregoing, proceedings were commenced in 1877 against forty-four railways having 5,409 miles of rail with \$320,000,000 of invested capital. "As a result of the last two years' work, at least a hundred roads are soon to be sold with an aggregate mileage of some 12,000 miles, and representing something like \$500,000,000. This fearful array does not by any means include "all the roads already doomed to foreclosure."

Iron and Steel Association, the annual rolling capacity of heavy rail mills in net tons on the 31st December, 1875, was nearly two and a-half times greater than the year's requirements. It was very much larger than the requirements of any previous year, taking the most active, 1872, as the basis for comparison. "The rail making power however, in its increase, was only a type of what was going on in other branches of the American iron trade. . . . In the year 1870, the actual make of pig iron was 1,865,000 tons, whereas the present producing power is estimated at no less than 5,439,230 tons."

While Mr. Bell is of opinion that the natural advantages possessed by the United States are such as will enable them to supply the bulk of their own requirements, he goes on to say, that it is "a mere delusion to expect that the continent of Europe, much less Great Britain, will ever be purchasers of the metal, in any of its manufactured forms, produced in the interior of America."

With reference to iron, it may be safely asserted that Cleveland iron, which to-day is quoted 40s. per ton, is the cheapest in the world. Our supply of iron ore is practically unlimited, and I do not apprehend that, for many centuries to come, there is any danger of our inability to meet the demand for the two great factors of our national prosperity, coal and iron.

It is not needful to dwell at any length on the advantages of our geographical position. Our insular situation gives us security against invasion, immunity from the conflicts of neighbouring races and nations, freedom from the necessity of maintaining a vast standing army, great maritime advantages, such as natural harbours and navigable rivers, and a seafaring population. In these respects nature seems to have done all that we could desire to assist us in our commercial enterprise. As to our climate, it is perhaps rather a bold thing to speak in its praise; but that it invigorates, stimulates our energies, and conduces to continuous exertion, are facts hardly to be contested. In milder and more genial climates, where human life can be supported on very little, and where (in the words of Mr. Mill), "mere existence is a pleasure, the luxury which they prefer is that of repose. Energy, at the call of passion, they possess in abundance, but not that which is manifested in sustained and persevering labour." It is true our climate is not favourable to the production of richness and beauty of colour, or delicacy of tint in the dyeing of textiles, but, on the other hand, its humidity is a great advantage in spinning and weaving, which form so large a proportion of our manufacturing industry.

Passing to the second head, we proceed to deal with one important factor of commerce and industry, in respect of which

our pre-eminence is undisputed. Mr. Bagehot, in his treatise entitled "*Lombard Street*," says, "money is economical power." And the English money-market, according to him, is the greatest combination of economical power the world has ever seen. "Every-one is aware that England is the greatest moneyed country in the world; everyone admits that it has much more immediately disposable and ready cash than any other country. But very few persons are aware *how much* greater the ready balance—the floating loan-fund which can be lent to anyone or for a purpose—is in England than it is anywhere else in the world."

Mr. Giffen's treatise on "*Recent Accumulations of Wealth*," exhibits the astounding growth of this economic power in late years. The cheapness of money, the facility for obtaining loans, the certainty with which a trader can calculate upon the discounting of his bills, gives the English trader enormous advantages over those of other countries. It enables him to sell at a lower rate of profit, and, at the same time, to gain a higher percentage on his own capital than his foreign competitor. Mr. Bagehot demonstrates this by an example: "If a merchant has 50,000*l.*, all his own, to gain 10 per cent. on it, he must make 5,000*l.* a-year, and must charge for his goods accordingly; but if another has only 10,000*l.*, and borrows 40,000*l.* by discounts (no extreme instance in our modern trade), he has the same capital of 50,000*l.* to use, and can sell much cheaper." As the result of this "democratic structure of English commerce," we have a constant influx of new, vigorous, and enterprising men. Small capitalists are enabled by the aid of credit to force their way where the large capitalist sometimes finds it difficult to make more than common interest on his money. In our own time we have seen the rise of many great fortunes, which have been of very rapid growth, and generally from very small beginnings.

The advantage which this gives us in our competition with foreigners is immense. All new trades come first to us. If any country requires money for any new enterprise, such as the construction of railways or public works, it is to England that it looks for aid. And if the loan is granted, it is highly probable that we furnish the materials for the enterprise. In the United States the normal rate of interest on first-class security is 7 per cent., but for commercial purposes, and for the discounting of business paper, it generally rules much higher. I have recently seen it stated by Mr. Mudge, of Boston, and Judge Kelly (well-known authorities on American industry), that they have not so much to fear from the low rates of wages in England, as from the low rates of interest. With us it is sometimes 3 per cent. per annum, when with them it is said to be 3 per cent. per month. Another advantage derived from

the abundance of capital, is the vast scale on which our industries are organised. This leads to the minute subdivision of labour which greatly increases the dexterity of the workman, and promotes economy of production, by assigning different branches of labour to the capacities adapted to them. This is carried to a greater extent in England than in any other country; even in old industries common to both France and England, I have found single capitalists conducting various branches of a manufacture each of which constitutes a separate business with us. As the consequence, the English operative attains a rapidity of manipulation which is the despair of his foreign rival. I cannot sum up our advantages under this head better than by again using the words of Mr. Bagehot. "All the common notions about the new competition of foreign countries with England, and its dangers, notions in which there is in other respects much truth, require to be reconsidered in relation to this aspect. England has a special machinery for getting into trade new men who will be content with low prices; and this machinery will probably secure her success, for no other country is soon likely to rival it effectually."

The next question to be considered is that which relates to the efficiency of English labour. I use the word efficiency, because that labour only is cheap which is efficient. Its value must be measured by its productiveness rather than by its cost. My friend Mr. Brassey, in a lecture delivered about a month ago, on the comparative efficiency of English and foreign labour, urged that we had much more to fear from the highly paid labour of America, which brought labour-saving machinery and mechanical skill generally to a high degree of perfection, than from the lower wages of the continent of Europe. Referring to the success with which the Americans have competed with us in the making of small arms and of locomotives, he says:—

"It would seem at first sight incredible that our engine builders should have been beaten in a neutral market with no hostile tariff. Anyhow, it would have been expected that if we were beaten it would have been by the Belgian or German makers, who command an ample supply of labour at comparatively low rates. The contrary, however, has happened; and it is a country where labour is paid at rates unknown in the old world which has supplanted us. We have been conquered by the mechanical skill of the employer in devising labour-saving machinery, and by the industry and energy of the workmen, who, if they have earned high wages, have worked longer and more industriously than many among our own mechanics have been disposed to do."

There is no question that has been so freely canvassed and submitted to such severe and searching criticism, as that of the

present efficiency of English labour. According to some, both its quality and productiveness have declined in proportion as its costliness has increased. While expressing my belief that much that has been said has been unnecessarily severe and, in some instances, grossly unjust, it is impossible to deny that the high wages earned in the coal and iron trades during the late period of inflation, have added little to the material or moral well-being of many of the workers in these branches of industry. But if this is true, as I fear it is, of too many, it is not true of all.* A sudden and exceptional rise of the rate of profits or of wages in any branch of business is seldom more than temporary, and rarely brings with it lasting benefit to either employer or employed. This part of our inquiry has such an important bearing upon the question under consideration, that I propose to consider it more fully than any other.

A quarter of a century ago, Mr. Mill,† treating on the degrees of productiveness, regarded it as an established fact that the English workman was distinguished above all others by the energy and application he brought to bear upon his work. Speaking of the thoroughness of this application on ordinary occasions, he says, "this last quality is the principal industrial excellence of the English people. This efficiency of labour is connected with their whole character, with their defects as much as with their good qualities. The majority of Englishmen have no life but in their work; that alone stands between them and *ennui*." While fully and painfully conscious of the defects of my countrymen, and regretful as any man of that recklessness, intemperance, and thriftlessness which are the characteristics of too many, and which have led them to waste the opportunities afforded them by a time of exceptional prosperity, I am of opinion that their energy, efficiency, and skill have suffered no diminution, and that they are to-day, as they have been in the past, superior in these qualities to the workmen of any other nation. There is a strenuousness of effort, a rapidity and deftness in their movements, which I have never seen equalled except in the United States. The American, being of the same race, I rank as the equal of the Englishman. I do not believe he is superior, only so far as he excels in temperance and intelligence. This opinion is founded upon long experience, personal observation,

* Mr. J. W. Pease, M.P., in giving evidence before the Coal Committee of 1873, said: "I found from the secretary of one of the building societies, that he had on his books 268 pitmen from the district in which our collieries are worked. . . . Those men had deposited in the year 1872, 3,900*l*. Another secretary said, that from looking over his books he found that the men in the group of collieries just named, had deposited, on an average, 300*l*. a month in his building society."

† Chap. vii, vol. i, "Principles of Political Economy."

and the evidence afforded by competent and impartial witnesses. I have often, in my own experience, compared the production of French, German, and American workmen with that of the English, from machinery in every case made in England, and I have never known the Frenchman or German to produce the same quantity of work as the Englishman, although their working hours were longer. Generally the production fell short from 20 to 25 per cent. The American, under equal conditions, will produce nearly, though not quite as much. Wherever I have found him producing more, it was due to his having been furnished with better machinery and appliances to work with. Where considerable physical strength is required in connection with technical skill, I have invariably found the continental workman much slower than the Englishman, and the production in this case not more than two-thirds of our own. It is quite true that even more than a corresponding reduction is made from the wages, but this does not compensate for the diminished productiveness of the capital, machinery, and plant employed, and of the consequent increase in the working expenses.

In a lecture delivered by Mr. Alexander Redgrave, in November, 1871, before the Philosophic Institute of Bradford, he gives the following statistics as to the proportion of spindles to persons employed in the cotton factories of the various continental States:—

In France	14
Russia	28
Prussia	37
Bavaria	46
Austria	49
Belgium	50
Saxony	50
Switzerland	55
Smaller States of Germany	55
United Kingdom.....	74

“Incidentally” (he adds), “the following statements have been made me by managers of cotton factories, showing the relative capacity of work of the Englishman and foreigner.

“In Germany the working hours were (at that time), from 5.30 a.m. to 8.30 p.m. every day, including Saturday. In a cotton factory there, a manager calculated that the same weight was produced when superintended by English overlookers as in sixty hours in England; but if the work were superintended by German overlookers, the weight produced would be much less.

“As another instance: in Russia the factories work night and day one hundred and fifty hours per week, there being two sets each, working seventy-five hours per week. Taking the year round, the manager of a cotton factory there considered that, in

"England, as much would be produced in sixty hours per week. He also said that no weaver ever had more than two looms, and that the speed of the machinery was about one-third less than in this country.

"Some few years since I had opportunities of inquiring into this subject, both in France and in Germany, and from every quarter, and especially from English overlookers, I received the strongest assurances that the English workman was unapproachable in the amount of good work turned out, and in steadiness; that the relative cheapness of wages did not counterbalance the steadiness and quickness of the Englishman at his work."

I have reason to know that the proportion of spindles to operatives employed on the continent, quoted by Mr. Redgrave in 1871; has in the interim considerably augmented; but improved machinery has in the same period been largely introduced in our own cotton-mills, while the hours of continental labour have considerably diminished, and the wages increased. The restrictions on the employment of children and young persons are now more severe in France, Germany, and Switzerland than with us.

From M. Taine's well-known "Notes of England," we draw the following comparison between the English and French workman.

After referring to the more salient types of British workmen, to their strongly-nourished, hardy, and active frames, their phlegmatic, cool, and persevering natures, he thus continues:—

"French manufacturers tell me that with them the workman labours perfectly during the first hour, less efficiently during the second, still less during the third, and so goes on diminishing in efficiency, until, in the last hour he does little good at all. His muscular force flags, and, above all, his attention becomes relaxed. Here" (in England), "on the contrary, the workman labours as well during the last as the first hour; but, on the other hand, his work-day is one of ten hours, and not of twelve, as with us. By reason, however, of this better sustained attention, the Englishman gets through more work. At Messrs. Shaw's, of Manchester, to manage 2,400 spindles, one man and two children are found sufficient; in France, it needs two men, and three, four, and sometimes more children, for the same purpose. . . . But in certain qualities" (says M. Taine), "as in the matter of taste, artistic finish, and the like, the Frenchman has the advantage. He is more *imaginative*, less mechanical; and, by consequence, that power of concentration, of stubborn, persevering, and sustained application where the labour is monotonous, which so distinguishes the English workman and gives him his pre-eminence, is lacking in the French."

In 1873 a circular was addressed to Her Majesty's representatives

abroad, at the instance of the National Association of Factory Occupiers, requesting them to furnish information as to the spinning and weaving of textile fabrics in the countries to which they were accredited. This was in anticipation of the factory legislation which took place in the following year. In Belgium, where there are no legislative restrictions, and where labour is cheap and abundant, Mr. Kennedy, our representative, reported "that the flax and cotton industries have remained stationary during the past ten years. The two or three factory occupiers whom I met" (he further observes) "asserted that they could not pretend to compete with England. Manchester manufacturers, they said, could select their cotton on its arrival at Liverpool, close to their mills. Coal was cheaper and handier at Manchester than at Ghent. England, again, was the only producer of good machinery, and likewise possessed ready markets for her products in her vast colonial possessions. And lastly, English operatives were far superior to Flemish. On this latter point all were agreed that the Englishman, being better fed, possesses greater physical power, and produces as much work in ten as the Fleming in twelve hours; and, having greater intelligence and mechanical knowledge, comprehends the machinery he works, and can point out to the foreman, in case of obstruction, the cause of the accident, whereas in Ghent half-an-hour is constantly lost in seeking for the cause of a stoppage in the machinery."

"With the exception" (continues Mr. Kennedy) "of the long-established export trade of Belgian woollen yarn to Scotland, I may state, as the result of my inquiries, that there is little, if any, regular exportation of Belgian textile fabrics to Great Britain for consumption there. Occupiers of factories at Verviers assured me that they never exported a piece of cloth directly to England; and the same story was repeated to me by mill-owners at Ghent in regard to yarns and tissues both of flax and cotton. . . . The reasons for the possible successful competition of Belgian with British textile fabrics must be sought for in the lower rate of wages, the longer hours of labour, and the cheaper railway transport in Belgium as compared with Great Britain: But, notwithstanding these apparent advantages, it does not appear that British manufacturers have anything to fear from their rivals in Belgium."

Our minister in Switzerland thus expresses himself, in his report, as to the workman in that country:—

"The Swiss workman is in most respects inferior to the British workman. He has neither the physical strength, nor the energy and activity of the latter. He is stolid in appearance, apathetic in temperament, slow and awkward in his movements, yet by

"no means wanting in intelligence. He is steady, methodical, industrious, and painstaking. Though of a saving disposition, no inducement in the shape of higher wages will stimulate him to extra exertion."

Mr. Harris, our representative in the Netherlands, reports thus:—

"There is a general opinion, not unfrequently shared by the workmen themselves, that the Dutch labourer is not equal in point of skill to the foreign workman—that he is slower at his work, and turns it out in a less finished state."

The single exception in which equality is claimed, is that of the United States, where it is urged that, although the wages are higher than with us, the additional labour performed nearly compensates. As I have already intimated, I believe this statement to be erroneous where all the conditions are equal.

In 1873, Mr. Alexander Redgrave, Chief Inspector of Factories, accompanied by Mr. Jasper Redgrave, sub-inspector, visited France and Belgium, for the purpose of investigating the "hours of labour, wages, production, and like details," in the textile industries of those countries. They were armed with letters from the Right Honourable H. A. Bruce, the Home Secretary, which secured for them "the official recognition of the French and Belgian Governments." They instituted the most searching investigation into the questions which formed the subject of their inquiry, and the result was given in a most interesting pamphlet of fifty pages. I give the following extract from their concluding remarks:—

"The value of the English workman still remains pre-eminent, though the interval between him and his competitors is not so great as it was. He has not retrograded, but they have advanced, and that advance has been chiefly caused by manufacturers importing and copying from England that machinery which supplies the place of strength, steadiness, and perseverance. The Belgians are an industrious and painstaking race, but, with the French, they lack that intencness of purpose which is the characteristic of the Englishman. They are given to gossiping, their attention is not as close, they are moved and excited by more trifling causes than an Englishman. Then, again, whatever may be the proneness of the Englishman to indulgence in habits of intemperance, there is no question for a moment of the vast superiority of the cotton, woollen, and flax factory operative in England over the French and Belgian workman of the same class.

"In every town the complaint against the operative was 'drunkenness.' It was difficult to make manufacturers understand that the English textile factory operatives went to their work as punctually on the Monday as on any other morning. Those who knew England were of course aware of the different manner in which Sunday is kept; but they nevertheless thought that quiet drinking would go on to such an extent on the Sunday as to make its mark on the Monday morning's work.

"Although the foreign factory operative is not, as has been said, nearly so far behind an Englishman as he was a few years since, yet in all those occupations in which a call is made upon physical endurance and perseverance, the Englishman certainly maintains his pristine eminence. The Yorkshire foreman of foundry who has been mentioned, was certainly not backward in speaking well of his

Belgian workmen, but he said they could not do the work like an Englishman; they could neither keep to their work nor do the same amount in the same time. This was a fact acknowledged by all, and accounted for partially by the difference in the nature of the sustenance of the operatives in England."

There is a striking family likeness in the allegations made by the employers of all countries against the efficiency of their workmen. In a series of valuable and exhaustive papers on the "Wage Statistics of Germany," by Dr. Leo de Leeuw, he shows that in various branches of the iron trade, wages advanced from 60 to 100 per cent., and in some instances, reached as high as 500 per cent. "Yet," he says, "according to the unvarying testimony of the employers, the actual wages earned in 1872 and subsequent years, were scarcely in excess of the wages earned before 1867. The workmen took the difference in idleness and dissipation; in most establishments it became the rule to close from Saturday night to Tuesday morning, and it was only on Wednesdays that work was fairly resumed."

I have seen extracts from the German newspapers respecting the dissipated habits and general deterioration of the German workman, that corresponded so closely with what has been said about English workmen, that one might have been the translation of the other. Even the champagne story has been current, but the consumption has been attributed, in Germany, to the working builders, whereas, in England, it was accredited to the miner.

Dr. Leeuw adduces statistics to show how large a diminution of work accompanied the increase of wages in the building trade of Berlin. The following is a literal translation of his statement:—

"It has lately been shown in the Berlin building trade that the rise in wages went hand-in-hand with the decrease of labour in the following proportions:—

"From 1862 to 1873 the time of work was reduced from eleven to ten hours per day; the day-labourer's wages rose in the same period from 1 reich-thaler to 1 reich-thaler 14½ silbergroschen, i.e., 50 per cent. Out of fifty buildings constructed in each year, the numbers are found as follows:—

Year.	Number of Days Worked.	Number of Stones Laid.	Number per Man per Day.
1862.....	30,217	18,795,000	623
'63.....	31,419	21,114,000	672
'64.....	36,504	24,849,000	667
'65.....	41,305	27,020,000	654
'66.....	28,428	19,267,000	681
'67.....	26,608	17,084,000	642
'68.....	27,204	16,814,000	618
'69.....	47,599	20,230,000	446
'71.....	33,364	13,379,000	401
'72.....	36,666	12,052,300	326
'73.....	28,888	11,683,000	304

"Showing that the quantity of labour-result decreased more than 50 per cent., and that, conjointly with a diminution of hours and an increase of 50 per cent. in wages, the cost of building rose more than 100 per cent."

Another of Dr. Leeuw's most striking comparisons, which has recently appeared in the "Times," is that between an English and German cotton factory, the former situated in Lancashire, the latter in Saxony. The English concern is one of 63,900 spindles; the Saxon establishment contains 22,000. In the larger factory, 202 workpeople are employed, at a total wage outlay per week of 176*l.* The 130 *employés* of the smaller mill are paid with 80*l.* per week. Thus, while the average earnings of the Saxon operatives were not more than 11*s.* 10*d.* per week, their English fellows, including, of course, women and children, earned 16*s.* 10*d.* each, a difference of more than 40 per cent., and the "week" of the English factory hand, be it remembered, is many hours shorter than that of the German *arbeiter*. But the English establishment is nearly three times the size of the Saxon, and while the former is worked with 3·1 *employés* to every 1,000 spindles, the latter requires 5·99 to every 1,000, nearly twice as many. To put the matter in another shape, if both factories were of the same size, each containing 64,000 spindles, the annual disbursements of the German concern would amount to 12,000*l.*, against 8,800*l.* for the English establishment, a saving in favour of the latter at the rate of 3,200*l.* a-year. If this comparison were carried further, it would doubtless show, in other respects, to the disadvantage of the Saxon cotton-spinning, for if it costs more to build houses in Germany than in England, it also costs more to build mills, and increased rents must tell as heavily on the manufacturer as the householder.

I think it is only fair to state that, as the result of personal inquiry, this illustration is an extreme one; the machinery of the Saxon mill must be somewhat antiquated, and when compared with our most recently constructed mills, exaggerates the superiority of English labour.

With reference to the building trade of Switzerland, the following is the substance of a statement by Professor Gustav Cohn, Berlin, 1876. Professor Cohn compares the cost of buildings in London and Zurich, and, although there is no great difference between the two places in the cost of building materials, he arrives at the conclusion that it costs twice as much to erect and finish a house in the Swiss city as in the metropolis of Great Britain, and to this difference he attributes the fact that rents are so much higher in Zurich than London. In order to arrive at a just conclusion, he eliminates from his comparison the business and fashionable quarters,

where the question might be complicated by the elements of expensive sites and heavy ground-rents, and chooses "in the most outward periphery" of Zurich a locality which is to that place what Wimbledon is to London. If the result of the Professor's investigations is to be trusted, a dwelling that at Wimbledon is rented at 40*l.* a-year, could not be obtained at Zurich for less than from 1,500 frs. to 2,000 frs. a-year; and as wages, the cost of materials, the value of money and of land are pretty much the same in both places, it follows that the difference in rents must arise from the superior skill of English builders, and the greater efficiency of English labour. This is the conclusion of Herr Cohn, based as well on induction as on his own personal observation and inquiries.

As regards the habits of the American workmen, Mr. Lowthian Bell, in his report on the Philadelphia Exhibition of 1876, says:—

"In the matter of intemperance it is extremely difficult for a stranger to draw any comparison which discloses accurately the real state of the case. All I can say is, that the complaints of the employers in America were quite as numerous and quite as severe as those I am in the habit of hearing and experiencing in this country. In one case, that of the railway shops at Altoona, the plan of forbidding the sale of intoxicating liquors in the town had been tried with such unsatisfactory results, that, on the petition of the railway company, the old order of things was re-established."

As to the relations of capital and labour in foreign countries, there is no reason to suppose that they are anywhere better than with ourselves, and generally I believe them to be much worse. The reports on the late industrial conflicts in the United States, furnished by our consuls, reveal a condition of things worse than anything we have yet experienced in our own country, or that I believe we shall ever realise. The reports from Germany speak of the rapid spread of socialism amongst the working classes, and of the restlessness, strife, and insubordination consequent thereon. I was in Belgium in the spring of last year, and found several strikes in progress, with great dread and apprehension of violence. The mines and works were guarded by detachments of infantry, while cavalry patrolled the surrounding country. Nowhere do I find the same readiness to conciliate, to confer and arbitrate on wages' disputes as with ourselves. With the better education of our working-classes, will come a better acquaintance with economic laws, and a demand for a higher standard of social comfort. These will result in a more conciliatory attitude towards capital, more strenuous effort, more intelligent labour, more temperate habits, and greater thrift. And if our people have been laborious and inventive when ignorant and thriftless, we may reasonably look for

higher development and greater industrial excellence when these national defects shall have passed away. I therefore conclude this branch of my subject by affirming that in my opinion, we are not in danger of being surpassed in the field of intelligent and efficient labour.

Of the importance of our carrying trade and our great colonial empire, I have left myself but little room to speak. Our maritime preponderance is even greater than that of our capital. The tonnage of the merchant navy of the British empire is little, if at all, short of that of the whole world combined. As a single illustration of its growth and trading success, I append the figures representing the direct trade between the United Kingdom and the United States, whose merchant navy ranks next to our own :—

Years.	British.	United States.	Other Countries.	Total.
	Tons.	Tons.	Tons.	Tons.
1855.....	420,268	1,854,308	49,445	2,324,021
'65.....	1,231,663	484,098	152,692	1,868,450
'75.....	3,648,184	736,338	899,443	5,278,965

This shows about 19 per cent. British in 1855, which rose to about 68 per cent. in 1875.*

In a discussion which took place a few weeks ago in New York, it was advocated by the merchants present, that the United States Government should be called upon to grant a subsidy for a line of steamers between the United States and Brazil; and it was instanced that at present the quickest route by which goods and letters could be sent to the east coast of South America, was by English steamers from New York to Liverpool, and thence by our mails to Brazil.

I can hardly better illustrate the advantages of our possession of the carrying trade, than by pointing to its influence on our cotton manufactures. The Americans in the Report of 1873, to which I have referred, claim an advantage of two cents per pound in the purchase of their cotton. This, I am satisfied, is exaggerated. The average rate of freight on cotton from the American ports is stated by Messrs. Ellison and Co., to be about one halfpenny per pound from Galveston, New Orleans, and Mobile; three-eighths of a penny from Charleston and Savannah; and a farthing from New York. Mr. Atkinson, of Boston, U.S., who is the best authority on American cotton manufacture, estimates that the New England spinner has an advantage of fully one farthing per pound over the English spinner. I believe, however, that this supposed advantage is neutralised by the larger market of Liverpool, which is the depôt market of the world for cotton, and where the American

* See also Table A, Appendix.

crop has to compete with those of India, China, Egypt, and South America.

Although our colonies offer no exceptional advantages in the way of differential duties to English trade, they are an undoubted source of strength to the commerce of the mother country. They are peopled with the most adventurous of our own race, who carry with them the English spirit of enterprise, together with English habits, tastes, and wants. As a natural result, their chief trade is with England, from whence they derive the credit and capital needful for the development of the resources of the countries of their adoption. As will be seen from the following table, our trade with our colonies exhibits a steady growth even during the recent period of depression:—

Imports from and Exports to the Colonial Possessions of the United Kingdom during the last Ten Years.

Years.	Imports.	Exports.			Total Imports and Exports.
		British and Irish Produce and Manufactures.	Foreign and Colonial Produce and Manufactures.	Total.	
	£	£	£	£	£
1868	66,993,547	49,864,924	3,852,904	53,717,828	120,711,375
'69	70,416,491	48,072,683	3,819,064	51,891,747	122,308,238
'70	64,832,413	51,814,223	3,577,109	55,391,332	120,223,745
'71	72,944,418	51,250,213	4,311,081	55,561,294	128,505,712
'72	79,372,853	60,555,997	5,053,221	65,609,218	144,982,071
'73	81,010,122	66,328,471	4,819,236	71,147,707	152,157,829
'74	82,162,839	72,280,092	5,629,936	77,910,028	160,072,867
'75	84,423,971	71,092,163	5,562,848	76,655,011	161,078,982
'76	84,332,576	64,859,224	5,290,665	70,149,889	154,482,465
'77	89,684,888	69,875,045	—	—	—

But whatever may be the extent of our resources, and however great our capacity to maintain a successful competition in the domain of commerce and industry, nothing is more essential to the continuance of our supremacy than that entire freedom of trade to which we are so largely indebted for the development of our manufacturing industry, and the attainment of our great wealth. It is truly lamentable to find that the recent depression has revived some of the old fallacies of protection, under the new names of reciprocity, retaliation, and limited protection. Should these notions, so industriously promulgated by persons of rank and station, take hold of the minds of the working classes of this country, they would become exceedingly dangerous. Happily, some of the leaders of the workmen have repudiated them with a vigour and strength of argument highly creditable to their intelligence. Mr. Lloyd-

Jones concludes an article on "Free Trade and Reciprocity" in the "Industrial Review," as follows:—

"If Englishmen understand their own interests, the days for 'protection and 'reciprocity'—whatever the word may mean—have gone for ever. It is no part of our duty to show to our continental rivals any alacrity in following their bad example. What we ought to teach them is the advantage of cultivating industries, the products of which will be more useful for profitable exchange with us than for profitless and ruinous rivalry; and if our working men lose sight of this, and run after reciprocity agitators, they will prove themselves greater simpletons than we take them to be."

It is true that the restrictions imposed upon trade by foreign nations operate injuriously upon our growth, but they react still more injuriously against their own, and to follow their example in any degree would diminish our capacity for competition, and weight us still heavier in the race. As an illustration of this, I append a table from the "Econometiste Français," giving the proportion of manufactured articles to the total exports from the United States during the past ten years. The percentage, as will be seen, is steadily diminishing. Notwithstanding that in the list of manufactured articles are included such things as oilcake, refined petroleum, manufactured tobacco, wood, lumber, timber, &c., which may be regarded as but slightly removed from natural products.

United States' Exports.

Year.	Manufactured Articles.	Total Exports.	Percentage of Manufactured Articles.
	Dollars.	Dollars.	
1877.....	78,235,969	632,980,854	12'3
'76.....	72,677,031	594,846,971	12'2
'75.....	66,241,159	559,237,638	11'8
'74.....	90,135,179	633,339,368	14'2
'73.....	83,647,435	575,277,017	14'5
'72.....	68,380,275	476,421,478	14'3
'71.....	73,518,207	478,115,292	15'4
'70.....	62,264,259	455,208,341	13'9
'69.....	61,015,628	371,045,149	16'4
'68.....	63,649,429	370,555,788	17'3

The effect of the protective system on the condition of the American people has been deplorable. It has created for them all the evils which we have been striving during the last half-century to eradicate. Notwithstanding her boundless resources, America has ceased to attract to herself the skilled labour of the old world. Emigration is practically stopped. She has a vast army of unemployed labourers, gradually sinking into pauperism. Mr. Blair,

a member of Mr. Lincoln's government, presiding recently at a conference for dealing with the Tramp Question, declared his belief that there were 1,250,000 artisans and labourers at present unemployed. On the 19th of last month, in the city of Boston, a deputation, representing 75,000 unemployed working men, waited upon the mayor, praying for the adoption of public works in order to keep them from starvation.* The annual statement of the mayor of New York, published last month, points to a much worse condition of pauperism in that city than has existed in London for many years. Pauperism, strife between capital and labour, and a turbulent proletariat, are the results of a vicious economic system. Hundreds of millions of capital and tens of thousands of labourers have been diverted into wrong channels, where neither can ever be profitably employed, to the detriment of natural industries which with their aid would have flourished.

Nothing was ever more clearly stated, or has proved more true, than this paragraph written by Mr. Jevons twelve years ago, at the conclusion of one of his chapters:—

"Any attempt on the part of foreign nations to cripple the development of our trade injures them far more than us. The Morrill tariff almost wholly recoils upon the nation which submits to it. The effect upon us is seen in a temporary and inconsiderable check to one or two of our branches of industry. Its effect upon America is to cut it off from intercourse with the rest of the civilised world, to destroy its maritime influence, and to arrest, as far as human interference can arrest, the development of a great State. No doubt it enables a manufacturing interest to grow half a century or more before its time; but just so much as one interest is forcibly promoted so much are other interests forcibly held back. And no system of industry thus requiring the unnatural stimulus of Government protection, can compete with foreign systems stimulated by natural circumstances. When manufacture is naturally more profitable in America than in Britain we shall be supplanted, and not before then. The advent of that period can be hastened only by freedom of industry and trade, not by legislative devices."

The conclusions at which I have arrived after a careful consid-

* "We are prone to bewail the condition of the English labourer, and lament the existence of pauperism in England, but the official figures certainly do not warrant much self-gratulation. It may be that English private benefactions far exceed our own in amount, but the fact remains that the English Government aids fewer paupers proportionately to population than our own. The number of vagrants or tramps has increased largely in the State during the last few years. In 1873 the cases of relief of vagrants numbered 45,653; in 1874, 98,263; in 1875, 137,308; and in 1876, 148,936."—STATE OF MASSACHUSETTS, "Statistics of Labour," No. 81, 1877.

ration of the situation at home and abroad is (1), That the conditions of our commercial and manufacturing supremacy remain unimpaired, and (2), That there are no indications of any changes in the near future which are likely to endanger them.

Those who take the opposite view, usually point to the depression of trade, the falling off of our exports, the keenness and aggressiveness of foreign competition, and the comparatively high price of English labour. In reply I would point out that the depression is universal, that its duration and severity have been greater in nearly all other countries than in our own, and greatest in those countries where trade is most highly protected. I could have occupied the whole of my space with evidence of the depressed condition of the industries of other countries, and of the general outcry for increased protection against English competition. Let me give a single illustration. Of 190 industrial companies quoted on the Berlin Stock Exchange, more than 50 per cent. paid no dividend last year, and many of the remainder less than 2 per cent. per annum. Of coal, iron, and mining companies, 66 per cent. paid no dividend. The falling off of our exports is more in values than in quantities, and where it is in quantity it is in those branches which were unduly stimulated by exceptional demand and inflation of prices.* That foreign competition is severe at such a crisis is what we must naturally look for, but that we are bravely holding our own is, I think, not doubtful; the best proof that can be adduced of this is the state of our cotton trade. Every country that claims to be industrial manufactures cotton goods, yet in nearly all the manufacturers of cotton goods declare their inability to hold their own against us even in their home markets without the aid of increased protective duties. In the last number of the "Saturday Review" there is an able and exhaustive statement of the whole question, founded on a review of Messrs. Ellison and Co.'s annual trade circular. The writer notes that "our productive capabilities very largely exceed those of the whole continent taken together. "The number of our spindles amounts to 39,500,000; those of the "continent to no more than 19,608,000, or not quite half as many." "It must be added, however," continues the reviewer, "that the "quantity of raw cotton we imported was only 1,303,500,000 lbs. "against 1,044,460,000 lbs. imported by the continent; so that "while our superiority in spindles is over 100 per cent., "in actual production it is only 25 per cent." This latter statement is an error, which the writer has fallen into by measuring our production by the weight of cotton used, whereas the

* I am informed by one of our large ironmasters that the difference in *value* of the iron made by his firm in 1877 was 1,000,000*l.* sterling less than in 1873. The *quantities* were equal in both years.

real explanation is that we spin a larger proportion of the finer counts than our foreign competitors; and their average production is of a coarser and heavier description. The American export of cotton goods of all descriptions, notwithstanding the advantages which they claim as possessors of the most improved machinery and appliances, the most highly-skilled labour, and as the growers of the raw material, does not exceed 2,000,000*l.*, whereas our own export last year, including yarn and twist, exceeded 69,000,000*l.*, and was 2,000,000*l.* in excess of the preceding year.

If the comparatively high price of English labour is adduced as evidence of our inability to compete with our neighbours, I must repeat that it is on the increased efficiency and greater energy of labour that we must rely, rather than on low-priced labour, to enable us to sustain the industrial conflict. I am able to give statistics of the earnings of the workmen employed in one of the largest locomotive and machine-building establishments on the continent; and what is so striking is the low rate of wages as compared with English labour of the same description. Yet this great business is far from prosperous, and finds itself unable to compete with English machine-builders. On the other hand, American constructors of locomotives are now competing with us in South America, notwithstanding their rate of wages is as much higher than ours as ours is higher than the German.

Statistics of the Number of Workmen Employed by Messrs. Hartmann and Co., Chemnitz, with the Rate of Wages Paid from 1869 to 1877.

Date.	Average Number Employed.	Average Wages.		English Equivalent.	
		Mks.	Pf.	s.	d.
1st April, 1869, to June 30th, 1870....	2,410	13	04	13	—
1st July, '70, " '71....	2,211	13	18	13	2
" '71, " '72....	2,739	15	47	15	6
" '72, " '73....	2,817	16	86	16	10½
" '73, " '74....	2,829	18	12	18	1½
" '74, " '75....	2,693	17	86	17	10½
" '75, " '76....	2,228	16	17	16	2
" '76, " '77....	1,806	15	90	15	11

What I would urge upon employers and workmen is to hold fast by the principles of free trade. To strive each in their own way to promote a good understanding betwixt capital and labour. To develop as much as possible the scientific knowledge and technical skill of all engaged in manufacturing industry; and with the growth amongst us of greater intelligence, temperance, and thrift, I see no reason why the people of the United Kingdom should not reach a higher state of material prosperity and social well-being than any they have hitherto attained.

APPENDIX.

A.—*Growth of Mercantile Marine.**

TONNAGE OF MERCHANT NAVY.

	British Empire.	United Kingdom.
1820.....	2,648,000	2,412,000
'40.....	3,311,000	2,724,000
'60.....	5,710,000	4,586,000
'70.....	7,149,000	5,617,000
'76.....	7,964,000	6,197,000

STEAM TONNAGE.

	British Empire.	United Kingdom.
1840.....	95,000	87,000
'60.....	500,000	452,000
'70.....	1,202,000	1,111,000
'76.....	2,150,000	2,002,000

COAL. PRODUCTION AND CONSUMPTION OF.

B.—*A Statement of the Production of Coal in the United Kingdom from 1660 to 1800. The Authorities upon which this is Founded are given.*

Years.	Tons.	
1660	2,148,000	<p>For these years the vents of the northern ports are known. The coals sent from South Wales, from Cheshire, from northern ports, and from Scotland to London are recorded. Much of the coal used in iron works, &c., has been obtained. Other sources of information are referred to in "Coal Commission Report, 1871," vol. iii. But these figures are <i>estimates</i> mainly, but approximately correct.</p>
1700	2,612,000	
'50	4,773,828	
'70	6,205,400	
'80	6,424,976	
'85	6,888,712	
'90	7,618,760	
'95	10,681,728	
1800	10,080,300	

C.—*A Statement of the Production of Coal from 1803 to 1853. The Authorities quoted being given.*

Years.	Tons.	
1803	10,808,046	Mr. Buddle's evidence, House of Lords.
'16	27,020,115	Statistics and calculations of Samuel Salt.
'16	15,634,729	{ Report of deputation from the Wear on coal conveyed by canals, &c.
'29	16,034,799	Mr. Hugh Taylor.
'39	31,024,417	J. R. McCulloch.
'39	36,000,000	De la Beche.
'45	34,600,000	J. R. McCulloch.
'46	36,400,000	J. Emerson Tennant.
'52	34,000,000	Braithwaite Poole.
'53	54,000,000	Joseph Dickinson.

* I am indebted for this table to Mr. T. H. Farrer's article, "The Strength of England."—*Fortnightly Review*, March, 1878.

D.—*Production of Coal since 1854.**

Year.		Increase.	Decrease.	Increase of Population.	Export of Coal. Duty Ceased in 1860.
	Tons.	Tons.	Tons.	Per cent.	Tons.
1854	64,661,401	—	—	—	—
1855	64,453,070	—	208,331	—	—
'56	66,645,450	2,192,380	—	1·3	5,859,779
'57	65,394,707	—	1,250,743	1·3	6,737,718
'58	65,008,649	—	386,058	1·1	6,529,483
'59	71,979,765	6,971,116	—	0·8	7,006,949
1860	84,042,698	13,062,933	—	0·6	7,321,832
'61	86,039,214	1,996,516	—	1·0	7,855,115
'62	81,638,338	—	4,400,876	1·0	8,301,852
'63	86,292,215	4,653,877	—	1·0	8,275,212
'64	92,787,873	6,495,658	—	1·0	8,809,908
1865	98,150,587	5,362,714	—	1·0	8,585,118
'66	101,630,544	3,479,957	—	1·0	9,170,477
'67	104,500,480	2,869,936	—	1·0	9,953,712
'68	103,141,157	—	1,359,323	1·0	10,415,778
'69	107,427,557	4,286,400	—	1·0	10,837,804
1870	110,431,192	3,008,635	—	1·0	11,702,649
'71	117,352,026	6,920,834	—	1·0	12,747,989
'72	123,497,316	6,145,290	—	1·0	13,198,494
'73	127,016,747	3,519,431	—	0·9	12,617,566
'74	125,067,916	—	1,948,831	0·9	13,927,205
1875	131,867,105	6,799,189	—	1·0	14,544,916
'76	133,344,766	1,477,661	—	1·0	16,299,077

The Increase in the five years to 1859 = 7,318,364 tons.

” ” ” ’64 = 21,808,108 ”

” ” ” ’69 = 14,639,684 ”

” ” ” ’74 = 17,640,359 ”

Increase to end of ’76 = 8,276,850 ”

* This return is obtained by direct application to the whole of the collieries of the United Kingdom. About two-thirds of the coalowners make full and satisfactory returns to the Mining Record Office. The quantities raised by the collieries not making returns are *computed*, and this computation is guided by information obligingly supplied by Coal Trade Associations, Mining Institutes, Returns to Parish Authorities, and by personal inquiries made by the Keeper of Mining Records.

It should be known that the returns made under the “Coal Mines Regulation Act, 1872,” are not available, owing to the wording of Clause 38, by which no one but a Secretary of State or an Inspector can see the returns made under the Act.

Production for Ten Years ending 1876.

Year.	Production.	Increase.	Decrease.	Increase per Cent.	Decrease per Cent.
	Tons.	Tons.	Tons.		
1867	104,500,480	2,869,936	—	2·8	—
'68	103,141,157	—	1,359,323	—	1·3
'69	107,427,557	4,286,400	—	4·1	—
'70	110,431,192	3,003,635	—	2·7	—
'71	117,352,026	6,920,834	—	6·2	—
1872	123,497,316	6,145,290	—	5·2	—
'73	127,016,747	3,519,431	—	2·8	—
'74	125,067,916	—	1,948,831	—	1·5
'75	131,867,105	6,799,189	—	5·4	—
'76	133,344,766	1,477,661	—	1·1	—

E.—Calculated Productions for Ten Years ending 1886.

Year.	Production, Calculated in Regular Arithmetical Progression, at $3\frac{1}{2}$ per Cent. Annual Increase.	Production, Calculated According to Increase ($2\frac{1}{2}$ per Cent.) and Decrease ($1\frac{1}{2}$ per Cent.), as per Preceding Ten Years.
	Tons.	Tons.
1877.....	138,011,700	138,011,700
'78.....	142,842,109	135,941,664 — $1\frac{1}{2}$ per cent.
'79.....	147,851,502	140,699,622
'80.....	153,026,387	145,624,108
1881.....	158,382,310	150,720,951
'82.....	163,925,690	155,996,184
'83.....	169,663,087	161,656,050
'84.....	175,601,297	159,034,210 — $1\frac{1}{2}$ per cent.
'85.....	181,747,342	164,600,407
'86.....	188,108,498	170,361,421

Note.—Mr. Jevons's system.*Estimated Available Coal.*

In the ascertained coalfields.....	Tons. 90,207 millions.
Under permian, new red sandstone, and other strata	56,273
Total available quantity	146,480

F.—*Economy in the Use of Coal. Iron.*

The accompanying table shows the rate at which economy in the use of coal in the blast-furnace has proceeded.

There is no evidence showing that the economy of fuel in the making of pig iron, and the consequent reduction in price, has led to the manufacture of more iron, by which more coal would have been consumed, as Mr. Jevons argues.

Economy has been secured by—

- (a) Improved construction of furnace;
- (b) Improved application of blast;
- (c) Utilising the waste heat, &c.

Economy will be secured mainly by the substitution of steel for iron—

- (a) By the Bessemer converter;
- (b) By the Siemen's and Martin-Siemen's regenerative furnaces, &c.;
- (c) Siemen's direct process.

In no one of these cases can there be anything leading to an increased consumption of coal, even supposing the manufacture of iron or steel to be very largely increased.

Everything indicates that there will be a large economy in the quantity of coal used in the future. In the past we see that progress is according to a law of undulations (we have not defined the rate of movement), and so, in all probability, will it be in the future.

Statement of the Production of Pig Iron, of Coal used in its Manufacture, and the Proportion of Coal to each Ton of Pig Iron made in each of the following Years:—

Year.	Pig Iron Made.	Coal used in Manufacture.	Coal used to each Ton of Pig Iron made.		
			Tons.	cwt.	qrs.
1787.....	—	—	*9	—	—
1840.....	1,396,400	4,877,000	†3	10	—
'69.....	5,445,757	16,837,871	3	—	—
'72.....	6,741,929	17,211,729	2	11	—
'73.....	6,566,451	16,718,562	2	10	3
'74.....	5,991,408	16,292,201	‡2	14	2
'75.....	6,365,462	15,645,774	2	9	—
'76.....	6,555,997	15,598,381	2	8	—

* The Muirkirk Iron Company, Ayrshire, used this quantity in 1787.

† The coal returned and estimated in 1874 as used in manufacture, is believed to be in excess of the actual quantity.

‡ On the authority of Mr. Porter.

The returns since 1872 are from the Mineral Statistics of the United Kingdom.

DISCUSSION on MR. MUNDELLA'S PAPER.

MR. J. B. BROWN took exception to the statement made by Mr. Mundella, that America had ceased to attract to itself skilled labour. He had given a great deal of attention to the matter at the time the Philadelphia Exhibition was held, and he found that in Massachusetts, especially in the neighbourhood of Boston, capitalists were importing the most skilled labour they could find for Manchester, Birmingham, carpet and other manufactures. His experience at other times, and in other parts of America, testified to the same fact. In answer to Mr. Mundella, Mr. BROWN said that the tariff on the importation of carpets to the United States was very large. He agreed in everything that Mr. Mundella had said in regard to free trade. Everywhere he went in America, he found the manufacturers were in favour of protective duties. A large number of the most intelligent of them, said they would willingly yield a great portion of the tariff at once, because the American workmen, and the improved American machinery could hold themselves against the world. The Ayrshire carpets were formerly sent out in large quantities, but the Americans had now engaged better and more skilled workmen from Scotland, and were also improving their designs, and selling at much lower prices than formerly. From his own experience, he found that English workmen generally when employed in an American workshop, were inferior in expedition to an American, and that the American machinery on the whole, was superior to the English, quite as well made, generally more ingenious and more successful in saving manual labour. Mr. Brown could not adopt the *couleur de rose* view to which Mr. Mundella had given expression in reference to skilled British labour. In regard to the paper itself, it was one of which the Statistical Society ought to be very proud. Americans and other nations were more and more becoming their own manufacturers, and consequently becoming less and less dependent on England. Sheffield, Birmingham, Manchester, and other great centres of English manufactures, were not only gradually, but were fast losing their foreign customers, especially in America, where spirited capitalists were producing as good and oftentimes better articles at lower prices; and Mr. Mundella in his very natural enthusiasm on behalf of English manufactures and English workmen, seemed to ignore stern facts, which close and practical observers could easily see at once, by an unprejudiced glance.

Professor LEVI said that Mr. Mundella had raised the question before the Society in a very luminous and interesting aspect. He thought that the reason why there had been such an outcry against free trade, or rather why there was such a fear of competition, was because there had been a certain retrogression in the exports of British produce and manufactures. Up to 1873, the exports of

British produce and manufacture were rising very rapidly, so that they attained to 223,000,000*l.* Since then there had been a decline. In 1877 they were reduced to 198,000,000*l.* A decline of 11 per cent. would seem considerable, but you must give time for digestion of the excessive exports of previous years. Wait, and we may yet have another rebound. But how do we stand as regards foreign competition? Comparing the relative increase of the exports of foreign countries, and the United Kingdom in 1860 and 1876, it would be found, that taking Belgium, Holland, the United States, France, Italy, and the United Kingdom together, in 1860 out of 351,000,000*l.* total of exports, England exported 136,000,000*l.*, being 38 per cent. In 1876, the same countries gave a total export of 588,000,000*l.*, of which England exported 201,000,000*l.*, being at the rate of 34 per cent., so that in relation to those countries, the exports of the United Kingdom diminished to the extent of 4 per cent. Taking the yearly increase, we found that the exports of Italy increased at the rate of 10·1 per cent.; of Belgium, of 7·6 per cent.; Holland of 7·5 per cent.; of the United States, of 5 per cent.; of the United Kingdom, of 2·9 per cent.; and of France, of 3·5 per cent. The figures were as follows :—

	1860.	1876.	Increase per Cent.
	£	£	
Holland	20,000,000	44,000,000	120
Belgium	19,000,000	42,500,000	123
France	91,000,000	143,000,000	57
Italy (1861)	19,000,000	48,000,000	152
United States	66,000,000	109,500,000	65
„ Kingdom	136,000,000	201,000,000	47
	351,000,000	588,000,000	67

The truth is, that it is more difficult to raise a large percentage on 130,000,000*l.*, than it was to raise it upon 18,000,000*l.* or 19,000,000*l.*, which was the rate of the exports of Belgium and Italy, and like countries. (Mr. MUNDELLA said that Professor Levi should bear in mind that the exports of Great Britain were almost exclusively manufactures, whereas France, for instance, had more than 50 per cent. of natural products.) Professor Levi admitted that it was not safe to take the total amount of exports, because, as Mr. Mundella stated, in the exports there were great portions of raw and agricultural produce, in which England never intended to compete with other countries. We should rather compare the exports of cotton, wool, silk and linen manufactures, and perhaps the export of iron, of the United Kingdom and other countries. See how these stand :—

	1864.	1876.	Per Cent.	
			In-crease.	De-crease.
<i>Exports of Cotton Manufactures—</i>	£	£		
From France	3,700,000	2,600,000	—	29
„ Belgium	800,000	640,000	—	20
„ United Kingdom	42,000,000	55,000,000	31	—
<i>Exports of Woollen Manufactures—</i>				
From France	14,600,000	12,600,000	—	13
„ Belgium	1,700,000	1,600,000	—	6
„ United Kingdom	12,000,000	19,000,000	35	—
<i>Exports of Iron—</i>				
From Belgium	1,000,000	1,800,000	80	—
„ United States	700,000	1,000,000	43	—
„ „ Kingdom	12,000,000	21,000,000	75	—
<i>Exports of Machinery and Engines—</i>				
From United States	700,000	700,000	—	—
„ Kingdom	4,200,000	7,200,000	71	—

In nearly all cases, as you see, the exports of the United Kingdom have increased at a greater ratio than those of other countries. In any case we must not ignore the fact that for the last twenty years a large number of the most important consuming countries, in Europe especially, have been engaged in war, and consequently became impoverished. In 1863, the total revenue of the countries he had mentioned, except Holland, was 239,000,000*l.*, and in 1875 it amounted to 374,000,000*l.*, showing that now 135,000,000*l.* a-year more was extracted from the people, for national purposes, than used to be. Can we be surprised if these nations have not the same amount to spend in food or clothing, or house furniture? Also, the national debt of the countries referred to, had increased from 1,500,000,000*l.* to 2,380,000,000*l.* between 1863 and 1875, and they had to pay the interest on that debt. These were solid causes for a certain amount of diminution of the export of manufactures. As Mr. Mundella had shown, the circumstances between the productive power of different countries were not very much altered within the last twenty years. As far as labour was concerned, England had probably larger numbers, and more skilful labourers now than ever she had; in matters of capital, England had kept all her capital, and accumulated it very largely, while other countries had lost and wasted it in warfare. In machinery he imagined that England did not stand behind other countries. As we advanced in civilisation, it was to be expected that other countries would be able to produce more than they previously did; and would be therefore less in need of British manufactures, so that there at least, England would do well if she was able to keep her ground. But the field was larger than that, and that was a point which would be of interest to keep in view in regard to this question. Taking the total population of the world

at 1,000 millions, there was every year an increase of 1 per cent. per annum at least, or 10 millions more to be fed and clothed, and so far enlarging the field of operation for all producing countries. The chances were that as we advance, other countries would rival England, but she was far a-head of them at present; she had more capital than any of them, and considering surrounding circumstances, she would continue to remain in advance for a long time to come.

Mr. CRICKMAY could not admit the truth of the explanation by Professor Levi of the decrease of our exports, that it was caused by the exhaustion of our foreign customers by various recent wars, and called attention to the fact that immediately after the close of the Franco-Prussian war, our trade with France had revived to a remarkable degree, and our commerce with the world generally had attained its highest figures. He quoted the amount and value of the exports of coal, metals, and cotton, for the years 1871-73, and attributed the falling off in the demand for these three items since to the enormously increased charge for them (100 per cent.) then made to the foreigners.

Mr. LOWTHIAN BELL, M.P., F.R.S., said he should be glad to be able to persuade himself, as Mr. Mundella had done apparently, that the dawn of better times was so near at hand. He feared that in Mr. Mundella's case the wish was father to the thought. He did not pretend to set himself up as a prophet even in coal and iron, which occupied so great a portion of the space in the paper they had just heard. It was the business with which he was best acquainted, but after forty years' experience, he must confess that he was unable to see any farther into its futurity than anybody else. He should like to say a word or two in regard to the great and vexed coal question. He thought it was a very proper thing that a nation like Great Britain, depending almost exclusively upon mineral resources, should follow the example of private manufacturers, and take stock of her resources; but estimating the amount of these resources with any degree of accuracy was quite a different matter. There were now coal fields opening out in places where they were not dreamt of before. In the county of Durham shafts were being sunk to work coal from under the sea, but neither he nor anyone could tell how far that coal might extend under the ocean, or if there, how far we could follow it. But the extent of coal we possess is only one factor in the calculation: the other being our rate of consumption; and he observed that Mr. Mundella attempted to make it appear that Mr. Jevons was wrong in his estimate, because the increase in this rate had been $2\frac{1}{2}$ per cent. in one particular year, instead of $3\frac{1}{2}$ per cent. as Mr. Jevons had estimated it. (Mr. MUNDELLA: Ten years.) Mr. LOWTHIAN BELL said that if it was ten years, his argument equally applied, because it is the variation in the factor of consumption which increases the difficulty in all these estimates.

The amount of work to be got out of coal now, so far exceeded that which anyone thirty years ago, would have dreamt, so that it

was impossible to give any idea of the durability of our coal fields. In his younger days, there was in the North of England, any amount of refuse of coal to be got almost for the asking. At that time it was carried from the colliery to the shipping place, and delivered to the consumer for 1s. 6d. a-ton; and any man at that time would have been thought insane who gave himself any great amount of trouble to economise in the coal he used. It was no use economising coal at a cost of 1s. 1d., if only a 1s. were to be saved. Instead of conferring any advantage upon this country by such a course of procedure, it would be the very reverse. Things were now greatly altered. Coal had become dearer, and those using it had been compelled to study the nature and action of fuel, and also to consider its economical application. When he stated that the 2 millions of tons of pig iron yearly manufactured in the Cleveland district, were now made with something like $3\frac{1}{2}$ million tons of coal less than it could be made with in 1850, he thought it would be allowed that there was some very good reason for that which he had just stated in estimating the future of our coal consumption, and duration of our coal fields. Again, take the steam engines; steamers crossing the Atlantic, with compound engines, consumed 90 tons per day, instead of 130 as formerly; so that if in every instance where coal is used, the same degree of economy was practised, what is the basis upon which any calculator would proceed to foretell the duration of our coal resources? He quite agreed with all that had fallen from Mr. Mundella, with regard to English labour. It was a very much more difficult thing to make comparisons in regard to this, than some might think. Unless the factors both of cost and the amount of work done, were placed upon precisely the same footing, it was impossible to institute any comparison which was entitled to the slightest value. America had, by virtue of its high tariff, and other considerations, attracted labour which to any other country, would be considered ruinous. When he was in the coal districts of Pennsylvania in 1874, the coal hewers could earn nearly 40s. a-day and the bricklayers nearly 30s.

Neglecting such unusual cases as those just referred to, and comparing the cost of our labour with that of continental Europe, notwithstanding the lower rates of day work there, it frequently happened that the actual cost of results was not in former years cheaper there than with us. He had been particularly struck with this in connection with the wages paid about blast furnaces, a kind of employment which offered great facilities in making the comparison.

Mr. Mundella had referred to arbitration, which he (Mr. Lowthian Bell) considered had been raised to the position of one of the great questions of the day. The chief advantage however he conceived of arbitration was that the employers and their men were brought before a properly, and to some extent, solemnly constituted tribunal, and thus that want of patience and toleration for the relative position of each was avoided. It had also the advantage that it enabled not only the men to understand the difficulties which surrounded the masters; but it gave the employers fair opportunity of studying, and making themselves acquainted with the difficulties which the

men had to submit to. There was no doubt, that however a matter might be settled by arbitration, a point at last was reached where the person who paid the wage was and could be the only judge of what he could afford to give.

With regard to iron, to the cheap production of which Mr. Mundella attached so much importance, and the trade of which was far from being in a prosperous condition, yet, whatever the facilities of America or any country might be with regard to the making of this article, still in many places in England, and certainly in Cleveland, he did not fear competition from any part of the world.

Professor STANLEY JEVONS said the paper seemed to him to be one of the most suggestive he had ever heard. Selecting one line of thought, in the first place, he should like to say something as to cost of production, in reference to which many facts had been given. These facts amounted to a complete disproof of the theories usually entertained by manufacturers and others, as to cost of production governing competition, meaning, by cost of production, the rate of wages paid. On a former occasion, he drew attention to the late Professor Cairne's book on "Some Leading Principles of Political Economy," in which it was proved that the cost of production was not the cause, but the effect of the efficiency of industry. When it was said that in America, wages were higher than here, it simply meant that the produce of industry in comparison with labour, was in general higher there than in this country; but in France and Germany, where the remuneration of labour was less, it meant that the workman did not, generally speaking, produce the same quantity of work in comparison with labour. In India there were poor people who could not produce 6d. a-day, because they had not our muscle and strength, and inventive powers. Where the means of production were greatest, wages were greatest. It came to this, that the rate of wages measured the produce, and not the cost, for the cost of production was the labour itself. However, that was a point admitting of much discussion, and he would rather refer them to the works of Professor Cairne.

In reference to the subject of coal, he must confess that Mr. Mundella had treated the subject in the fairest way. He had quoted the best statement, from his (the speaker's) point of view, of the conclusions that had been arrived at by careful inquiry upon the subject, namely, that we could not long go on in our present rapid state of progressive consumption. When, in the year 1865 or 1866, he gave the unfortunate table beginning at 1861, and going up to 1961, showing opposite the latter year a consumption of 2,607,000,000 tons of coal, it was not in the least intended to imply that we ever could consume 2,600,000,000 tons in a year. On the contrary, it was intended to show that we could not. It was asserted that our present progressive state involved an increase every year of $3\frac{1}{2}$ per cent.; but, if that rate of increase were carried through several generations, it would lead to quantities which were impracticably great. The next question that arose, was, had that assertion concerning the $3\frac{1}{2}$ per cent. been verified or not? The

statement which Mr. Mundella made, founded upon tables furnished by Mr. Robert Hunt, was no doubt accurate in itself; but it happened not to apply. He showed that the increase in the last ten years was $2\frac{1}{2}$ (more exactly 2.75) per cent. per annum, and not $3\frac{1}{2}$ per cent. Now, 1866 happened to be the very climax of an active period, when the coal consumption had just risen to its highest point. From 1866 there was increasingly bad trade for certainly two years, and it would be observed in the table, that up to 1873 there was a rapid increase. It then rose to 127,000,000, and up to that year it would be found, the rate of increase was $3\frac{1}{2}$ per cent. or more (in fact about 4 per cent.); but the increase in the price of coal, which he believed, at the pit's mouth rose to three times what it was before, was sufficient to account for the fact that the increase did not continue during the next few years. In 1873 we felt the first pinch of the coal famine; but since that year there had been an enormous multiplication of the means of producing coal. He believed coal owners were prepared to produce a great deal more than was produced now; and it only wanted a few years of brisk trade to run up the rate of increase to $3\frac{1}{2}$ per cent. per annum. His own impression was that that pinch of the coal famine in 1872-73, was very much the cause of our slow progress since.

He should like to mention that there would probably have been a relapse of trade, even in the absence of the extraordinary price of coal, because we were evidently experiencing one of the regular decennial cycles of prosperity and adversity, that had gone on now for a century and a-half. There was no doubt whatever that these cyclical variations, regarded simply from a statistical point of view, were proved to exist; that every ten years on the average, there was an active state of trade in the absence of extraordinary accidents, and that this active trade was followed by a collapse. He understood that Mr. Cornelius Walford would shortly bring forward remarkable facts proving that there was a physical influence on our trade which we hardly suspected. He had recently convinced himself that these decennial crises were evidence of regular periodic fluctuations, and it was no use overlooking the fact any longer. He did not say this cyclical variation was the whole cause of the depression of trade; but it was an important factor to be taken into consideration.

Mr. STEPHEN BOURNE called attention to the fact that while there was a falling off of our exports, there was a continued increase in the imports, and that, too, principally in articles of food. There could be no harm in importing any amount of food if those from whom it was purchased took our manufactures in exchange; but this they were unwilling to do. To this he attributed the present depression in trade. Unless the state of things to which he referred were altered, he could see no hope of a revival of trade, although he agreed with Mr. Mundella that there was no reason for despair, considering that this country possessed the largest amount of capital, and still retained the highest amount of intelligence and industry in the pursuit of manufactures. As a remedy

for the present evil he suggested the establishment of new colonies, which would form new markets in which to dispose of our manufactures in return for the food which they would produce.

Mr. HAMILTON said he agreed in the main with the very hopeful view Mr. Mundella had taken of affairs, at the same time this country could scarcely expect to retain the relative position it had heretofore held, because, as Professor Levi had pointed out, it must expect at times to be encroached upon in regard to certain branches. As an example, he instanced the manufacture of jute, which, in comparison with its bulk, was an article of very low value indeed. For a considerable time jute was brought from India to Dundee, and manufactured into various fabrics, and a great deal of it was again exported to India; but at the present time there were in Calcutta and other parts of Bengal large factories established for the working up of their own raw material. Machinery of the newest construction was sent out from this country equal to any at work in Dundee, together with British superintendents. The coal that was used, taking its quality into consideration, was doubtless more expensive than that used in Dundee, but labour was infinitely cheaper; and the result was that the Australian colonies were now supplied from India with nearly all their wool and grain sacks, besides other articles manufactured from jute, the value of which amounted to a very large sum. He was also in a position to state that manufactures of jute were sent from Calcutta to the Cape of Good Hope, and the same thing might be expected to take place in regard to other colonies. The same thing was taking place in India, though not to such a marked extent, in regard to cotton, there being an annually increasing number of cotton factories; so that while he agreed with Mr. Mundella that the exports from this country might for many years to come continue to increase, still at the same time it was not to be expected that it should hold the same position relatively to other countries that it had hitherto enjoyed, as we must expect to be encroached upon under special conditions, such as these he had instanced.

Mr. MUNDELLA said he quite agreed with Mr. Hamilton that foreign nations would develop their own natural resources in their own way, in doing which they became more prosperous, and consequently better customers for the manufactures of this country. Mr. Bourne had said that the purchases by this country were being increased and the sales diminished; but he (Mr. Mundella) should like to ask how it was that this country was the greatest moneyed power in the world if it was spending more than it was earning. With respect to the falling off of our exports, after what had been stated by Mr. Lowthian Bell, as to the increase in price of pig-iron and steel rails compared with what it was a few years ago, the falling off was easily accounted for. The fact is, in 1873 the prices were too high. Much of the trade was done on a false basis. The English people were lending their money to Turkey and Egypt, and other borrowing States, and to American railways. No doubt

Mr. Lowthian Bell had received payment for the rails he exported to America, but the bondholders had not got paid. They had been paid for their iron, but the bondholders had not got interest for their money. Business was, however, now on a sounder footing than it was formerly. He hoped he was not too sanguine when he gave it as his opinion that the iron trade would be the last to succumb. He did not quite agree with Mr. Stanley Jevons in his theory that the rate of wages paid measured the production. The miner who Mr. Bell told us got 18s. a-day in the United States, might not be a greater producer than the one who received half the wages in England. Of the whole exports of American goods, $12\frac{1}{2}$ per cent. were manufactured. When that was the case it could not be said that American manufacturers were prospering. There were a million and a-quarter of men out of work, and they were trying to compete with Lyons in silks, with Bâle in ribbons, with Bradford in stuffs, and with Sheffield in cutlery, and so on. They were doing it, however, by a fictitious system. As a result, consumers of these goods were paying a ruinous percentage for the benefit of some manufacturer in the United States, who had sunk his money, and was all for plunder. He agreed with Professor Levi, that the exports of this country had not increased in the same ratio as those of other countries, but the reason of this was that such countries as France and America exported largely food and natural products, and these had not fallen in price as iron and manufactured articles had, they had rather risen in value.

It was agreed that the discussion should be adjourned to that day fortnight.

ADJOURNED DISCUSSION on MR. MUNDELLA'S PAPER.

(Tuesday, 5th March, 1878.)

MR. GLOVER, after referring to the great importance of the question raised by Mr. Mundella, said that if he rightly understood the economic conditions under which the people of this country were now living, something like half the population were fed with daily bread as the result of our manufacturing supremacy, and by that alone. The enormous amount of 100,000,000*l.* a-year for the purposes of local and imperial taxation could never be raised if it were not for that commercial supremacy. The question which Mr. Mundella put to the Society derived further cogency from the time at which it was put. The country was now in a period of commercial depression, and the question was put with almost feverish anxiety—"Is this depression from which we are suffering

the first symptom of a decay which is to be permanent, or is it only one of the epochs of bad trade to which, from time to time, we have been accustomed? Is the end of our supremacy beginning, or are we to see shortly a revival of trade in this country?" Mr. Mundella had divided the conditions on which, he said, our supremacy rested, into two classes. There were what he called the natural conditions, and the conditions that we ourselves had made. With respect to most of these natural conditions, he should be disposed to agree with Mr. Mundella, with one qualification. It must not be forgotten that the supremacy which this country derived from the coal measures and the great stores of ironstone, was one which we no longer had the monopoly of. Other nations were beginning to find that beneath their feet there lay invaluable deposits; and it was only a question of time when, not only America but other nations would follow this country in developing these hidden treasures. In regard to the observations made on the last occasion by Professor Jevons, he (Mr. Glover) was one of those who regretted to see eminent statisticians turn prophets. Professor Jevons did one of the worst things he could do for England when he published his table, because to it he chiefly attributed the coal famine. Professor Jevons well knew that in the long vista of time which he put forward with a sort of geometric progression, other things would be brought into play bearing on the consumption of coal which could not now be reckoned. He agreed with Mr. Mundella that there was not the slightest probability of this country taking any backward steps in the matter of free trade, even in spite of some signs to the contrary. Mr. Mundella had said we had a magnificent carrying trade. He agreed with that, and if Mr. Mundella would allow him to offer a suggestion before the paper appeared in the *Journal*, it would in that respect be very much improved. The proof of our hold of the carrying trade had been given in one solitary table, showing the comparison between the English and American flag in the direct trade between this country and America. This, he thought, was a little invidious. The table showed the extent of the calamity that had been inflicted on the Americans during the civil war; but it was a well-known fact that we bought their fleet; the table did not sufficiently show the energy of the English. The table would be more useful if it gave an account of the growth of our own tonnage under our own flag in the last decade. (Mr. MUNDELLA said he intended to do this.) Mr. GLOVER said he held in his hand a paper issued on the previous week by the Committee of "Lloyd's Register," which showed that the progress of the English flag was continued. During last year more than half-a-million tons of new shipping were classed by "Lloyd's Register;" of this more than one-half are steamers. He gave this as a proof that the progress in this matter within the last ten years had suffered no disadvantage from bad trade. He agreed with Mr. Mundella as to the continuance of many natural and other advantages in this country, but he had lived long enough to learn that the mere possession of advantages of any description was not a certain title to success. It was a question of how we could use these advantages, and whether the faculty of doing so was increas-

ing or decreasing. Mr. Mundella had asked if there was nothing threatening to interfere with our supremacy. But what was hidden under that word "supremacy?" Our manufacturing and commercial supremacy depended almost solely upon our ability to sell in the markets of the world cheaper than anybody else, and the moment our ability to do that ceased, our manufacturing supremacy was gone. He held that there were intellectual and moral conditions of that supremacy on which its continuance was almost as dependent as it was on the natural conditions enumerated by Mr. Mundella, so that when the honourable member asked the question whether there was any reason to think that that supremacy might be endangered, he (Mr. Glover) answered that there were two reasons which, in his opinion, did threaten to interfere with that supremacy; these were the abuses of trades unions and the intemperance of the nation. The trades unions had increased the cost of production, unduly shortened the hours of labour, discouraged the attainment of superior skill in workmen, hindered enterprise by petty interferences with masters, and generally, as regards labour, had tried to treat it as something which needed the protection from which the commodities have been emancipated by free trade. As regards capital, the trades unions have unfortunately allowed it to be regarded almost as an enemy, and with the obvious results of making capital dearer and less available for industrial enterprises. In these ways trades unions threatened to interfere with our manufacturing supremacy. The speaker defended the existence of such unions, and the right on the part of working men to form them, while deprecating these abuses of such organisations.

Intemperance also threatened our supremacy by the waste it involved in the quality of the workers, the loss of time through the effects of drinking, and of the money spent in the liquor traffic, estimated at 150 millions per annum. It seemed hardly possible that we could go on drinking this large sum and keep our manufacturing supremacy. A saving of even one-third of the amount through mere temperate drinking would cheapen commodities, help us in our competition with other nations, and revive trade. He had no fear of the natural conditions of our supremacy failing, but in spite of them, nay, while in full enjoyment of them, we might lose our supremacy unless simple and sober living secured those intellectual and moral qualities without which the greatest natural advantages were useless alike to individuals and nations.

Mr. HYDE CLARKE said that the two classes of evils referred to by Mr. Glover happened to be those which affected other nations as well. In the industrial history of this country the system of trades unions had always been in existence. What were the guilds of the city of London, and of the boroughs of the kingdom, but the legalisation of trades unions in every class of industry? In reference to the depression of trade referred to by Mr. Glover, care must be taken in considering such a subject, as to how far it might be regarded as a temporary or as a permanent depression. There were circumstances connected with those periods of depression, which at all times must influence both this country and other countries. He

had the honour some years ago, to call attention to the decennial periods of famine and panic. He had tabulated the corn prices for six centuries, and he had found, besides the ten-years' period, that there were also larger periods, which intensified or weakened the short periods, which rendered it impossible to make any forecast of events. In the consideration of the important subject Mr. Mundella had brought forward, it must therefore be borne in mind, that the country must always be subject to those periods of panic. He would call attention to one part of the subject not touched upon by Mr. Mundella. In the course of the discussion on the last occasion there was an allusion to the part which India had taken in the jute and cotton manufacture. He wished to call their notice to what was the condition of some 600 millions of the population of the world in China, India, and Japan, because it was a question which had not so much engaged the attention that it seemed to him it deserved. The question whether 600 millions of people were to be competitors or consumers, was one of very great importance. Turning back only to a generation in India, the common rate of wages was a rupee or two rupees per month. How was it possible that a population under such conditions should have any great amount of exchangeable value? It was a thing that was relatively impossible. So long as there was that artificial difference in prices in India and Europe, there could be very little expectation of a large market in India: we could draw some produce from there, but we could not expect them, being in a condition almost of pauperism and nakedness, to be large consumers. But if it was borne in mind that the wages of India had increased double or quadruple in our time, that was evidence that a very great change must take place in the future. That change in prices resulted from two causes, one of which was the great improvement in transport, but it was more particularly due to the improvement made in internal transports in India, and the effect of the railways there, which tended to raise the prices to the highest market rates. The same thing took place in Europe, and was more familiar to us, because when we got a communication between one market and another, the result was that the price of the commodities must be the same in the two places, less the freight between the two. Looking at what was taking place in India and in other regions, there must be a rise in wages and prices, which would limit that power of competition which was considered on the last occasion. This was a feature which very much affected the future of our trade and manufactures; and he called attention to it, because it had been comparatively neglected, for though the opening effect of this new world had exercised such a great influence on trade, the main effect remained to be realised. If we continued to work and labour for the advancement of India, the welfare of the empire at home would also continue to be promoted.

Mr. H. D. POCHIN said he was surprised that Mr. Glover should have referred in the way he had done to Professor Jevons. At the last meeting Professor Jevons said: "I published that unfortunate table not to show what *would* be, but what it was not possible *could*

be." The people of England expected that their trade would increase after the same percentage rate as it had increased in the past, but their manufactures depended very largely upon the supply of coal, and Professor Jevons' book was written to show that this percentage rate could not continue, for if nothing else prevented it, the impossibility of obtaining the coal supply would do so. He thought the remarks that had been made that evening entirely misrepresented the statements put forth by Professor Jevons in his book. He (Mr. Pochin) was prepared to contend that everything that Professor Jevons had stated had proved in a remarkable way to be true up to the present moment. Mr. Glover had asserted that it was Professor Jevons' book that made the price of coal in 1873 and 1874 rise to 40s. a-ton; but the rise in the price of coal was not in any respect due to what Professor Jevons had written; it was due to the proportion which the supply bore to the demand. Coal was one of the first necessities of our manufacturers. The manufacturers were exceedingly active, and the demand for coal was 5, or at most, 10 per cent. beyond the supply, and manufacturers said they must have it at whatever cost, rather than stop their works. This was the reason why the price of coal increased in 1873 and 1874. Mr. Mundella had made a statement that the coal and iron of this country was practically inexhaustible, and that we need not have any anxiety on that subject for centuries to come. He differed *in toto* from that statement. The extension of the iron trade and the high prices of 1873 and 1874 induced a very large amount of outlay, and at the present time the supply of coal exceeded the demand. The consequence of that was that coal was now being supplied at a price which did not pay the producer; but that did not establish the fact that there was a superabundance of coal *in this country*. During the last eighteen years all the *more valuable seams* of coal near the surface had been worked out, or were being worked out very rapidly; and the consequence was that those who wanted coal must go to a very much greater depth for the same seams, or work inferior seams near the surface. This was the case in the Midland counties, and also with the Durham coal field, which were second in importance to none. In Durham, at the present time, there were not 1,000 acres of the best coking-coal to be obtained from any virgin coal field; it was all being worked out very rapidly, and he spoke with some knowledge of the fact, when he said that in five or six years from the present time all the *best coking-coal* of Durham would be in the hands of one large manufacturing establishment. Notwithstanding the superabundance of coal at the present time in the market, there was, he repeated, a scarcity of first-class coal, easily worked in the country; and every person who owned coal properties was asking double or triple what was asked for it fifteen years ago. Mr. Mundella had said that there was an inexhaustible supply of ironstone, but he (Mr. Pochin) disputed that fact altogether. Taking the large deposits of ironstone in this country, viz., those in the Cleveland district, all the best ironstone would in four or five years from the present time, be in the hands of one large manufacturing concern, and a second or third or fourth class ironstone would have to be worked to supply its place. It was true,

as Professor Jevons had said, that the last seam of coal or ironstone would never be worked out in this country. But still, every year the scarcity would become greater, and the expense of working higher, and we would be less able to compete with foreign manufacturers from these causes alone. He agreed with almost the whole of Mr. Mundella's paper except his conclusions, for he did not think with Mr. Mundella that it was by any means quite certain that there was nothing at the present moment likely to endanger the manufacturing interests of this country. Of late, competition in the labour market had almost ceased, because of the organisation that existed among the operatives, and because of the false doctrines propounded by some of its leaders; in fact, trades unions—which he described as a system of terrorisation—were endangering, to a large extent, the manufacturing supremacy of this country. Mr. Mundella had not referred in his paper to the active competition in the cotton trade that had sprung from the economy of labour in India. He (Mr. Pochin) believed that at this moment cotton manufactures could be produced, and were being produced, in India, cheaper than in this country, which was entirely in consequence of the command they had over labour which we had not here. The machinery in India was equal to the machinery in this country, and the labour was much cheaper; and in connection with it there were no union difficulties. There was another matter to which he wished to refer, namely, the propounding to the working classes of the necessity of limiting the production of the necessaries of life. This had been battled against by Mr. Mundella; but at the present moment it was being acted upon to a large extent, and it was the daily doctrine taught to the working classes. Mr. Mundella might say that this condition of things was not going on in this country only, but also in other countries. If that were the case, so much the worse. The real object ought to be to produce as much as possible, and the more the working classes produced by their labour the more they would have to consume and to enjoy. There was a time when our workmen were equal to any workmen in the world; but anybody acquainted with the facts would know that in certain classes of machinery we were outdone by the Americans, not because they had greater skill than our own workmen, but because of the spirit that was abroad amongst them, and the doctrines that were being instilled into them. The spirit in the American workshops was that the workmen would not tolerate an idler: but the idea that dominated in English workshops was that they should all do as little work as possible. In conclusion, he gave it as his opinion that there was enough bad doctrine propounded to workmen to ruin a country ten times as rich and ten times as eminent as Great Britain was at the present time.

Mr. LLOYD JONES said he had never heard any word from English workmen in favour of idleness, and they never preached the limitation of outputs, except in the presence of a glutted market. Although the employers did not preach such limitation they practised it whenever it suited their purpose. He contended that the trades unions were not the cause of the so-called decadence

of the trade of the country. In the fifty years after the establishment of trades unions, the trade of the country had increased in a much greater proportion than in the fifty years before.

Mr. CORNELIUS WALFORD said that at the last meeting the question of trades unionism had not been prominently brought forward as affecting the question raised by Mr. Mundella's paper; but on the present occasion it had come to the front with the prominence it deserved. Trades unionism had at the present time assumed an authority that it had not hitherto done. What did it mean? It meant at the present time the democracy of ignorance tyrannising over capital. Mr. Hyde Clarke had made a most unhappy comparison. He had stated that trades unionism would always exist in this country, and quoted the guilds as an example. He (Mr. Walford) was acquainted with many of the guilds, and was in a position to state that their object from the beginning had been superiority of workmanship or intellectual power brought to bear upon the dexterity of the workman, thus elevating his calling; but trades unionism meant, for instance, that a builder must not use two hands in building a house—must not evince any dexterity of hand or brain. This being the case, it had a tendency to reduce a workman to the lowest level. He defied contradiction when he said that a trades union man was one of two things—either a bad workman or a fool. If he was a bad workman, it answered his purpose to reduce all workmen to the level of himself; and if he was a good workman, he was a fool to put himself on that level. Trades unionism meant lessening production, lessening the intelligence a man might transmit to his posterity, and reduced him to a mere machine of the lowest class. He hoped that Mr. Blundell Maple, who was one of the largest employers of labour, and who understood the question of strikes, would be called upon to give his opinion, and would correct whatever mistakes he (Mr. Walford) had made in the remarks he had offered.

Mr. R. GIFFEN said that the debate seemed to have rather wandered from the question, which was not merely whether trades unions were advantageous or disadvantageous to the interests of this country, but whether we were in that respect better or worse off than the foreign countries who competed with us. Those who had said so much about trades unionism had not at all controverted the facts which Mr. Mundella had stated in relation to labour and capital in other countries, especially Germany and the United States. In considering the question of intemperance, Mr. Glover had also overlooked the question whether the labour of the British workman was less energetically directed than that of workmen of other countries. Mr. Mundella had drawn a comparison in detail between the labour of this country and of other countries, and did not altogether overlook intemperance; and if Mr. Glover had kept that comparison in mind, his remarks would have been more pertinent to the paper. In reference to the diminution of production, Mr. Pochin seemed to think that the diminution of the hours of labour meant the diminution of production. But this was assum-

ing too much. It had been a condition of industry during the last thirty years in this country that, coincident with the diminution of the hours of labour, there had been immense progress in mechanical invention, in the making of steam-engines, and in the skill of the labourer, so that production had really increased while the hours of labour diminished. If the progress made did not entitle the labourer to a diminution of labour, he did not see what hope there was for the improvement of the labourer's position in this respect. Up to a point, the diminution of the hours of labour, which was facilitated by mechanical invention, was one of the best things that could happen to the workmen and to the country.

Mr. R. RAWLINSON, C.B., said he had been engaged in almost every variety of labour connected with building and engineering. He had ceased to be a working mason when unionism was started in one of the largest towns in this country, in 1834 or 1835. Being, however, exceedingly desirous of making himself useful to his fellow workmen, he joined that union, and unions were then secret societies, the members being sworn in with a great deal of mummery. He was elected as vice-president, and occasionally had to preside over that union, which was a very strong one, until his time expired. His experience was that the discussions he heard in that trades union were of such a character as to perfectly shock and horrify him. He heard the character of masters discussed in the most revolting manner, and he also heard the doctrine propounded that no master was to be permitted to take a contract until he had submitted his tender to the trades union. No master was to be permitted to take an apprentice without the sanction of the committee. In fact, the master was to be tied hand and foot. In regard to the working men themselves, every man was to be coerced into the union, and if a strike took place, those who struck were to be supported. The time came when there was a call for his re-election, but, having learned the principles of the union, and thoroughly disagreeing with them, he declined again to take office. He related several instances in his past experience tending to show the evils of trades unionism. In his opinion, strikes sprung from a wish to get an undue share of money for short time and bad work. Unless trades unions could come down to common sense principles, the country was on the high road to ruin.

Mr. F. G. P. NEISON spoke a few words on behalf of trades unions. He thought with Mr. Chadwick, M.P., and some other gentlemen, who were large employers of labour, that were it not for these combinations, the men often would not be treated in the way they had a right to expect. The objections generally urged against trades unions were that they limited the hours of labour, and laid down what should constitute a day's work; that they objected to piecework, and limited the supply of labour; that they also opposed outside persons coming into the union; and that they enforced all those points finally by means of a strike. He thought that trades unions and strikes were not, as some seemed to think, synonymous, and he gave instances of unions in which strikes were not counte-

nanced under any circumstances, and others again in which greater restrictions on strikes were being enforced. In reference to the question of piecework, it could hardly be said that trades unions objected to it, for many unions consisted solely of those who were paid on this principle. His opinion was that unions were every day improving, and that many of the leading unions would not now for one moment tolerate things that actually existed in their rules many years ago. The spread of intelligence among unionists themselves was a hopeful feature, and would in time materially improve the general tone of these organisations. It was too late in the day to discuss whether trades unions should or should not exist; our efforts should rather be applied towards removing the objectionable features that some unions possessed.

Mr. BLUNDELL MAPLE said that as a large employer of labour he believed that capital and labour would soon find their proper level. He referred to the enormous protective duties placed by foreign countries upon many manufactures, as being one of the causes of the present depression of trade. For instance, in America the protective duty upon carpets was about 75 per cent., which was altogether a prohibitive tax. The carpet manufacturing trade of England is of great importance, and had engaged an enormous amount of labour. Up to the year 1870 about two-thirds of the whole production went to America, this amounting in that year to between 2 and 3 millions. Last year the amount exported to America was only 40,000*l.*, and that was taken only for the purpose of copying the designs, colours, &c. The duty imposed was therefore a prohibitive duty, and not for the sake of taxation. The carpet trade in America last year gave employment to between 150,000 and 200,000 hands, and this has been taken entirely from England, and for this diversion this country receives no return. Again, in looking at our exports, we must bear in mind that no end of our business has been done for much smaller ratio of profit than years ago. This has also been caused by these protective duties prohibiting our goods, and therefore over-stocking our home markets.

In the carpet trade, for instance, the firm of John Crossley and Co. employed nearly 6,000 hands in 1870, and two-thirds of their whole production went to America. At that time this firm were paying 20 per cent., but now they could only pay 5 per cent., which made a difference of over 178,000*l.* per annum to this one concern.

The loss, therefore, of the American carpet trade was of great importance to England. In France there is also a protective duty of 10 per cent. upon all cotton goods, carpets, furniture, &c.; this also interferes greatly with our exports to that country. A short time since the Manchester Chamber of Commerce waited upon Lord George Hamilton, and brought before him the fact that in India at the present time an import duty was put on all cotton goods from the mother country of 5 per cent., and they asked for some sort of reciprocity.

That seemed a hard thing to ask from a colony. What he (Mr. Maple) proposed was, that there should be free trade between

England and her colonies. On this point he thought that England principally had been in fault; for in making her treaties with other countries, she had in some manner neglected her own colonies. As an instance, he referred to the fact that at the present time a duty of 30 per cent. had to be paid on Indian carpets imported into France, whereas the Turkey, Persian, and English carpets only paid about 10 per cent.

In dealing, therefore, with the causes of the present depression of trade in England, the question of the development of the trade of the colonies ought to be taken into consideration; it ought not to be the case that the colonies should tax the home productions for the sake of paying their taxation; if it is necessary to tax imports the amount should be levied for foreign manufacturers, and not from the mother country.

Mr. E. HEPPLE HALL said that there were some points of more importance than trades unionism. While he coincided fully and cordially with the conclusions which Mr. Mundella had arrived at in his paper, he must take issue with him broadly upon the premises from which he drew those conclusions. About the supremacy of England's commerce and manufacturing wealth and power, there could be no doubt; whether there was to be a continuance of this was a wider and quite a different question. He respectfully, but, at the same time, most decidedly differed from Mr. Mundella and with the majority of the speakers upon that point. He held that so long as trades unionism continued to be a power in this country, we should not only find labour going to other markets, but it would also be found, that the capital and the manufactures would go with it. It had been broadly stated by Mr. Hyde Clarke that we should have to look to the native population of India as consumers and not as competitors; but in that he thought Mr. Hyde Clarke made a great mistake. The great principle of progress in all countries at the present moment was as to how low a figure good efficient labour could be bought. He contended that it could be obtained out of the rice-eating Chinamen or out of the light-food-eating which the native population of India had, up to the point of producing a certain kind of work in a certain efficient manner, for a wage which we in this country could not compete with. This, in a few years, would have the effect of altering the manufacturing supremacy that this country had so long enjoyed. A great deal had been said as to the efficiency of the labour of the country having decreased on account of the intemperate habits of the British workman compared with American labour abroad; but it did not appear to him that that had very much to do with the consideration of the question. All that had to be considered was whether the great mass of our working men of all grades, and especially of skilled labour, could be kept efficiently at work. Until the last two years it appeared to him that a great portion of the skilled labour of this country went to America, and there, he thought, it would remain, and that the United States, if they were true to themselves and were sufficiently aware of the dangerous precipice upon which they had been standing so long in regard to their tariff system, would

continue to be a competitor with Great Britain, and would very seriously affect the growth of our national prosperity.

Mr. MUNDELLA in reply asserted with confidence that not a single deduction in his paper had been touched upon by any of the speakers. He was aware that in taking a cheerful view of British industry he was doing the most unpopular thing possible; because no man was so popular in this country as when he pointed out rocks ahead. The main question in his paper was the labour question; and a good deal had been said in the course of the discussion as to the abuse of trades unions. He should like to ask, however, if there was anything in his paper defending the abuses of trades unions? He had said that taking all things into consideration, taking the relation between capital and labour in other countries, that this country stood in a fairer way to bring about a good understanding betwixt capital and labour than any other country in the world. He was prepared to maintain this; and he wished that some honourable gentleman would have taken the trouble to contravert some of the propositions in his paper. He was not there to defend trades unions. He believed the law of association would be operative in some form or other in all states of society. It was natural that workmen should form combinations, and that they should speak to an employer as one man, not as mere units. It was a fact that trades unions existed, and it had to be dealt with; there was no escaping from it in the present state of society. He was grateful to Mr. Glover for his suggestions as to the tables. When his paper was published he should make some addenda which would illustrate the subject far better. With all deference to Mr. Glover, he dissented from that gentleman's opinion as to Mr. Jevons being responsible for the rise in the price of coal; it was rather attributable to the sudden demand from a variety of points concurrently for iron manufactures. Seventy-five thousand miles of railway had been made in America in a very few years, and more than thirty thousand miles of that railway were said to be unnecessary, and were simply stimulated by grants of public land in America. There was a demand from Russia for twelve thousand miles of railway, and there was a sudden rush, after the Franco-Prussian war, and any price was paid for anything that looked like coal, or for iron rails, or anything in the shape of iron. Within the last two years ten thousand miles of railway in America had been foreclosed upon, and it had been disposed of for the benefit of the mortgagees. Another point touched upon was the question of intemperance; but there was the same complaint in this respect in every country in the world. It was a fact that the workmen in the industrial districts were now more regular in their work than ever they had been in the history of the country. With reference to the remarks of Mr. Hyde Clarke, he would say that although India, China, and other countries would continue to produce more of their own textiles, their wants would also continue to increase, and they would buy something else in return; the more prosperous the Indian people became, the more they would buy in the English market; and this was a matter for rejoicing. This

country ought not to have a monopoly of all the work in the world. Mr. Pochin took up the view of coal being almost exhausted, but this view need not be advanced as injuring our manufacturing prosperity. He held that our ironstone was practically inexhaustible. Mr. Lowthian Bell had stated in evidence that there was more ironstone in Cleveland alone than all the coal of England could smelt. The competition of the labour market had also cropped up as the one great difficulty. Mr. Pochin had said that the competition in the labour market was practically coming to an end. If this were so, it was a remarkable fact that in the iron market wages had fallen $62\frac{1}{2}$ per cent. since 1873; and at this moment, the iron worker was earning much lower wages than he had in a quarter of a century previously. In the north of England, two years ago, he gave, by means of an arbitration, a decision which reduced the wages of the iron workers by 50 per cent., and, since that time, there had been a further reduction of $12\frac{1}{2}$ per cent. The building trades had no relation at all to the manufacturing trades, which were paid by the piece. There was no such thing as equality in reference to the earnings of the working classes of this country. A man that bargained to work for 10d. an hour, and did not give his full energies to the work, was simply robbing his employer. Mr. Lloyd Jones had given his views as to the operative question. He (Mr. Mundella) had heard the Lancashire operatives say, "let us work four days instead of six, because you have large stocks; instead of those stocks reduce the production, and pay us the same wages." There was a good deal to be said about that. However, when he spoke to a working man, he said, "when you are producing coal and iron at a very low rate, it is the very fact that you can do that at a lower rate than any other markets in the world that enables you to keep the foreign competitor out of the market;" therefore he held that working men were wise in bad times in always running to meet the market and assisting the employers in competition, and he thought they were doing this to a large extent. The reduction in wages for the last three years in this country had been unparalleled. He would ask Mr. Pochin if ever puddling had been done cheaper than it was now?

Mr. POCHIN: There is nothing to do.

Mr. MUNDELLA said the workmen were willing to work at prices which were below the average of the last twenty-five years. Mr. Walford had said that the trades unionists were either good workmen or fools; but if he was acquainted with them he would not come to that conclusion. The trades union described by Mr. Rawlinson was the result of the combination laws. In his (Mr. Mundella's) own particular industry, as many as three thousand machines had been broken in a year; but nothing in the way of machine breaking had occurred in the last twenty-five years in that district. He should take exception to Mr. Maple's conclusion. The results to which he referred were not attributable to trades unions. The large colliery proprietors were now losing something very considerable every year. He should like to ask Mr. Maple

how he proposed to remedy the matter, and what he called reciprocity. Would he tax cotton from America? If he did, the Englishman who was a cotton manufacturer would be immediately at a disadvantage. Would he tax corn? If he did, the rate of wages would be raised against ourselves. Would he tax the meat? or would he tax the farmer who bought agricultural implements, or the woman who bought a sewing machine? Was there no protection for them? Let the Americans cut their own throats if they pleased; but do not let people of this country follow their example.

The PRESIDENT in moving a vote of thanks to Mr. Mundella, said that with all due deference to the speakers, too much of the discussion had, in his opinion, been devoted to the subject of trades unions. In order to have made the subject relevant to Mr. Mundella's paper, the speakers should have shown that other countries were free from what they charged to this country. He knew from experience that similar complaints were made in other countries. In Pennsylvania, for instance, the seat of the coal and iron trade of America, the whole country was said to be honeycombed with trades unions. The same complaint was made in Belgium and France. The relation between labour and capital was not an easy question in any country, but he believed it was as easily solved in England as in other countries. Fourteen years ago he was a member of a committee that inquired into the nature of trades unions, and the complaints made to that committee were greater than those that had been made during the course of the discussion. He undertook to say that the question of trades unions had nothing to do with the present state of trade or with our present relative position as compared with other countries. The same observation would apply with regard to the question of intemperance. In regard to this, other countries were similar sufferers to ourselves; these two arguments did not displace the statement made by Mr. Mundella as to the efficiency of the British workman compared with the workmen of other countries. He believed that the efficiency of labour in England was greater than in any other country in the world. No doubt the country at the present time was suffering from a great depression of trade; but was there not great depression in every other country in the world? Did not other countries at the present moment suffer more than Great Britain from the depressed state of trade? Was it not a fact that there were far more men out of employment in America at the present moment than there were in England? Was it not the fact that more failures were occurring in Belgium, France, and other countries in Europe? Looking to the general depression there was throughout the world, he thought the position of this country was a singularly sound one, and that its commercial supremacy was, at this moment, greater than at any other period of its history. This country was passing through the present depression with infinitely less suffering than other countries. No doubt the working classes were suffering from their wages being very much reduced; but there was no general suffering from large numbers of people being out of work, except in a few special branches of trade. There was an increase of pauperism, but it was very slight compared with the

decrease that took place three or four years ago, and the statistics showed that in the south of England pauperism had decreased. The increase was principally in the northern counties; the present state of the country bore striking evidence of the commercial strength of the country at this moment. He would therefore answer the first question put in Mr. Mundella's paper, whether there is at this moment any evidence of the commercial supremacy of this country being in danger, in the negative. As to the future there was an uncertainty; but if at this moment the commercial position of the country was not endangered, so he believed it would not be endangered in the immediate future. He did not think that any apprehension need exist as to the time of the probable exhaustion of the coal fields being near at hand: he thought, with Professor Jevons, that it was very remote. As to the charge made against Professor Jevons in raising the price of coal, he would point out that Professor Jevons's remarks were made in 1865, and that the price of coal went up in 1872, so that he did not think the prices had any relation to Professor Jevons's figures. At the same time it was remarkable how the product and consumption of coal kept up with the figures given by Professor Jevons. He thought the question as to the commercial supremacy of this country being endangered by the failure of the coal fields might be indefinitely postponed; and as to the efficiency of our labour, he saw no reason to doubt that it would in future be maintained.

MISCELLANEA.

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I.—*The Fires of London during the Year 1877, and the Metropolitan Fire Brigade.*

In continuation of similar notices for previous years, the following particulars are extracted from Captain Shaw's Annual Report to the Metropolitan Board of Works:—

"The number of calls for fires, or supposed fires, received during the year has been 1,708. Of these 106 were false alarms, 69 proved to be only chimney alarms, and 1,533 were calls for fires, of which 159 resulted in serious damage, and 1,374 in slight damage.

"These figures refer only to the regular calls for fires, or supposed fires, involving the turning out of firemen, fire engines, fire escapes, horses, and coachmen; they do not include trifling damages by fires which were not sufficiently important to require the attendance of firemen; neither do they include the ordinary calls for chimneys on fire, which are separately accounted for further on.

"The fires of 1877, compared with those of 1876, show a decrease of 99; and compared with the average of the last ten years, there is a decrease of 87.

"The proportion of serious to slight losses—159 to 1,374—shows that our success in reducing losses during 1877 has been about the same as in the previous year.

"The following table gives it both in actual numbers and percentages:—

Year.	Number of Fires.			Percentage.		
	Serious.	Slight.	Total.	Serious.	Slight.	Total.
1866.....	326	1,012	1,338	25	75	100
'67.....	245	1,152	1,397	18	82	100
'68.....	235	1,433	1,668	14	86	100
'69.....	199	1,873	1,572	13	87	100
'70.....	276	1,670	1,946	14	86	100
'71.....	207	1,635	1,842	11	89	100
'72.....	120	1,374	1,494	8	92	100
'73.....	166	1,382	1,548	11	89	100
'74.....	154	1,419	1,573	10	90	100
'75.....	163	1,366	1,529	11	89	100
'76.....	166	1,468	1,632	11	89	100
'77.....	159	1,374	1,533	10	90	100

"The number of fires in the metropolis in which life has been seriously endangered during the year 1877 has been 88; and the number of these in which life has been lost has been 24.

"The number of persons seriously endangered by fire has been 165, of whom 136 were saved, and 29 lost their lives. Of the 29 lost, 14 were taken out alive, but died afterwards in hospitals or elsewhere, and 15 were suffocated or burned to death.

"The number of calls for chimneys has been 3,744. Of these 1,256 proved to be false alarms, and 2,488 were for chimneys on fire. In these cases there was no attendance of engines, but only of firemen with handpumps.

"The number of journeys made by the fire engines of the 50 land stations has been 8,780, and the total distance run has been 30,865 miles.

"The quantity of water used for extinguishing fires in the metropolis during the year has been 14,657,165 gallons—in round numbers a little more than $14\frac{1}{2}$ million gallons, or about 65,400 tons. Of this quantity, 35,729 tons, or about one-half of the whole, was taken from the river, canals, and docks, and the remainder from the street pipes.

"During the year there have been 9 cases of short supply of water, 33 of late attendance of turncocks, and 9 of no attendance, making altogether 51 cases in which the water arrangements were unsatisfactory.

"The strength of the brigade at present is as follows:—

50	fire engine stations.
108	„ escape „
4	floating „
57	telegraph lines.
104	miles of telegraph lines.
3	floating steam fire engines.
1	iron barge, to carry a land steam fire engine.
5	large land steam fire engines.
22	small „
14	seven-inch manual fire engines.
58	six-inch „
36	under six-inch „
141	fire escapes and long scaling ladders.
406	firemen, including the chief officer, the superintendents, and all ranks.

"The number of firemen employed on the several watches kept up throughout the metropolis is at present 94 by day and 174 by night, making a total of 268 in every 24 hours; the remaining men are available for general work at fires.

"Our list of wounds and other injuries for 1877 is, as usual, large; but, so long as the men work well, no diminution of accidents can be expected.

"There have been during the year 230 cases of ordinary illness, and 90 injuries, making a total of 320 cases, of which many were very serious, and 1 terminated in death."

From the tables appended to the report are taken the following particulars:—

(a) The fires classified according to trades, arranged in the order of frequency of occurrence:—

	Number of Fires.
1. Private houses	321
2. Lodgings	195
3. Victuallers	56
4. Cabinet makers	30
5. Grocers	29
6. Drapers	25
7. Oil and colourmen	25
8. Builders	23
9. Tailors, clothiers, and outfitters	23
10. Under repairs and building	23
11. Farming stock	22
12. Stables	21
13. Coffee houses	21
14. Bakers	19
15. Boot and shoe makers.....	17
16. Printers.....	16
17. Offices	16
18. Tobacconists.....	15
19. Unoccupied	14
20. Refreshment rooms.....	14
21. Greengrocers and fruiterers	13
22. Hotels	3
23. Laundries	11
24. Booksellers and stationers	11
	<hr/>
	973
Remainder, varying from 1 to 10.....	560
	<hr/>
Total.....	1,533

(b) The fires classified by the causes to which they have been assigned and arranged in the order of frequency of occurrence:—

Causes.	Number of Fires.
1. Unknown	315
2. Lamps (not gas) and lights	203
3. Defective—flues, ovens, furnaces, boilers, stoves, &c.	174
4. Sparks from fires, &c.....	154
5. Gas	146
6. Candles	122
7. Overheating of flues, ovens, furnaces, boilers, stoves, &c.	87
8. Children playing with fire and matches	63
9. Hot ashes	48
10. Lucifers.....	32
11. Airing and drying stoves	30
12. Smoking tobacco	30
13. Boiling over of oil, fat, pitch, &c.....	25
14. Improperly set ovens, furnaces, stoves, fireplaces, &c.	16
15. Spontaneous ignition	15
16. Vapour of spirits and oil	15
17. Burning rubbish	8
Miscellaneous and doubtful	50
	<hr/>
Total.....	1,533

(c) The usual summaries for 1877 show: that of the months the greatest number of fires occurred in June (179), and the smallest number in May (101); with regard to the days of the week the largest number of fires (243) occurred on Thursdays, and the smallest number (192) on Sundays. The hours during which the greatest number of fires have occurred, are from 8 to 11 P.M., and those most exempt from such disaster are from 5 to 10 A.M.

With reference to the daily summary, the following table, which gives the total of the fires for each day of the week for the last ten years, shows on the *average* that the largest number of fires occur on Saturday, and the smallest number on Monday. The annual average number of fires for the last ten years, is 1,634.

Years.	Sunday.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.	Total.
1868....	233	227	234	267	229	225	253	1,668
'69....	220	220	229	251	199	235	218	1,572
'70....	290	252	258	266	300	268	322	1,946
'71....	186	202	247	302	271	258	276	1,842
'72....	199	206	213	207	220	220	229	1,494
'73....	202	209	237	199	230	243	228	1,548
'74....	222	228	248	195	240	231	229	1,573
'75....	200	203	231	227	236	209	223	1,529
'76....	260	218	226	235	242	221	230	1,632
'77....	192	218	212	224	243	216	228	1,533
Total...	2,304	2,183	2,315	2,373	2,410	2,316	2,436	16,337

The number of lives lost during the year by fire is 29, the number saved 136.

Captain Shaw in his report recommends 7 firemen for special merit, who collectively saved 17 lives during the year.

II.—*English Literature in 1877.*

THE following particulars are taken from the *Publishers' Circular* of 31st December, 1877, in continuation of a series of similar extracts for previous years:—

“There is, we said last year, ‘to be found in our statistics a degree of prosperity which we should hardly have anticipated,’ and we happily can repeat the sentence this year. In spite of all our troubles, there is a slight increase in the number of books produced in the year 1877 over that of 1876, as that year exceeded its predecessor. Thus they stand: 1875, 4,854; 1876, 4,888; 1877, 5,095. We must here warn our readers, that our lists only pretend to be approximately perfect. Every book that enters the Row or Stationers’ Hall Court, and that is really published, we endeavour

to chronicle, but since a statistician asserted that we had omitted the titles of some dozens of sermons and other works, we may take such literary works as examples, and assure our readers that many such 'works' are local, many never see London, and very many are probably never sold over a counter, many never once advertised, and more never 'subscribed' or shown to the trade. Absolute completeness under such circumstances is impossible, either to us or to the British Museum authorities, and perhaps, after all, it is not desirable. In fact, when looked into, the charge is no very grave one, and as we do our best we may well submit to it. Let us add, that if we can induce all authors or publishers to send us the full title of every work they issue, we can promise completeness. The classification of works in our lists is not always to be depended upon. It must be more or less arbitrary, and it is sometimes difficult to say what constitutes fiction, theology, or poetry, &c. The above note specially applies to books under the sixth, eleventh, thirteenth and fourteenth section in our analytical table.

"One of the chief sources of interest, and a perennial one to the British nation, theology, has by no means been suffered to decline in 1877. It holds its place, no less than 485 new works having been published, with new editions, as per list *b*, 252.

"Both in 1875 and 1876 a natural increase in educational and philological works had been noted; this has been maintained, the result being that in new books and new editions we have 529 in 1877 as against 470 in 1876.

"Juvenile works have long been a steady source of industry to book makers; 1877 gives us the sum of 522 in both new books and new editions; in 1876, 419.

"Up to November there seems to have been a diminution in works of fiction, which is not to be lamented, if we are to credit, as we certainly must, the character in our reviews given of most of those written chiefly by women writers. Such books can do little good and may do infinite harm. Still the number is for 1877, 854, as against 857 in 1876. It is to be remarked that the number of new editions under this heading is larger than any other.

"Law and jurisprudence give us new books and new editions, 118.

"Political economy yields many and important books, no less than a total of 189 having been published.

"Art, science, and illustrated works generally seem not to have recovered from their depression, but they still present large numbers, no less than 189 works having been issued.

"In history and biography there is an increase, the numbers being in 1876, 347; in 1877, 373. The work of the year which was perhaps destined to have the most important effect on the political world, the third volume of the 'Life of the Prince Consort,' belongs to this class.

"Voyages, travels, and geographical research in 1877 include some notable books, and show an increase, 209 having been issued.

"Poetry and the drama, year books and serials, which are classed together somewhat arbitrarily, indicate, during the first months, a decline. The numbers are 572.

"Medicine and surgery are, as usual, steady and sufficient, the number being 215.

"And finally, belles lettres, essays, including reprinted sermons, monographs, and pamphlets (not sermons), have been buoyed up by the increased activity of more than one writer, and give us 588, as against 342 in 1876.

"The increase on the year, so far as our tables show, being—

Analytical Table of Books Published in 1877.

Subjects.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total of Books on each Subject for the Year.
Theology, sermons, } biblical, &c.	*33 †11	33 22	41 21	40 17	39 20	40 21	35 18	27 21	24 17	38 23	68 35	67 26	485 252
													737
Educational, classi- } cal, and philo- logical	*18 † 8	17 14	39 13	36 14	16 25	21 11	36 19	11 11	14 13	33 29	41 17	47 26	329 200
													529
Juvenile works and } tales	* 6 † 7	21 12	11 6	13 9	19 18	7 23	11 16	8 8	3 6	61 26	55 57	80 47	287 235
													522
Novels, tales, and } other fiction	*21 †10	27 18	30 31	24 36	29 58	38 49	47 40	15 22	30 31	42 27	58 44	85 42	446 408
													854
• Law, jurisprudence, } &c.	* 1 † 1	4 1	2 5	12 4	6 4	4 2	8 2	1 2	4 7	5 4	6 8	10 15	63 55
													118
Political and social } economy, trade and commerce	*13 † 1	10 11	12 7	14 8	4 2	14 6	4 4	5 6	6 1	9 7	15 6	17 7	123 66
													189
Arts, science, and } illustrated works }	*15 † 4	7 3	7 4	20 7	8 6	13 5	6 4	3 —	5 3	7 4	11 11	23 13	125 64
													189
Voyages, travels, } and geographical research	* 9 † 3	10 2	5 7	9 5	11 5	14 5	15 11	6 12	7 7	16 10	13 7	17 3	132 77
													209
History, biography, } &c.	*12 † 8	17 11	19 9	15 11	16 9	29 9	15 6	14 7	8 7	21 3	32 30	43 22	241 132
													373
Poetry and the } drama	* 9 † 9	5 10	21 11	16 8	16 16	10 25	17 11	5 7	4 17	13 21	25 26	31 25	172 186
													358
Year books and } serials in volumes }	*21 † 6	3 21	5 10	4 6	2 3	5 3	7 3	6 1	1 3	2 5	2 26	12 57	70 144
													214
Medicine, surgery, } &c.	* 7 † 3	6 6	10 6	10 8	10 7	13 6	10 2	8 3	5 4	9 6	24 8	31 13	143 72
													215
Belles lettres, essays, } monographs, &c. }	*10 † 3	10 4	21 4	13 8	13 9	18 10	39 7	17 10	19 12	16 10	25 15	48 23	249 115
													364
Miscellaneous, in- } cluding pamphlets, not sermons	*10 †—	5 4	16 4	14 4	15 4	32 9	26 4	7 2	8 —	12 —	18 6	21 3	184 40
													224
	259	314	377	385	382	442	423	245	266	459	689	854	5,095

* New books.

† New editions.

The analytical table is divided into fourteen classes; also new books and new editions:—

Divisions.	1876.		1877.	
	New Books.	New Editions.	New Books.	New Editions.
Theology, sermons, biblical, &c.....	477	216	485	252
Educational, classical, and philological...	278	192	329	200
Juvenile works and tales.....	244	175	287	235
Novels, tales, and other fiction	452	405	446	408
Law, jurisprudence, &c.	101	63	63	55
Political and social economy, trade and commerce }	271	106	123	66
Arts, sciences, and illustrated works.....	152	100	125	64
Voyages, travels, geographical research ..	177	93	132	77
History, biography, &c.	228	119	241	132
Poetry and the drama.....	170	153	172	186
Year books and serials in volumes	157	136	70	144
Medicine, surgery, &c.	108	73	143	72
Belles lettres, essays, monographs, &c. ...	100	76	249	115
Miscellaneous, including pamphlets, } not sermons	116	50	184	40
	2,931	1,957	3,049	2,046
	—	2,931	—	3,049
	—	4,888	—	5,095
1877—January to December, inclusive—New books				3,049
New editions				2,046
				5,095
American importations, 481.				

III.—*The Profits of Joint Stock Banking in the United Kingdom.*

WE extract the following from the number of our new contemporary, the *Statist*, for the 16th of March:—

“We propose, in a series of papers, to give some account of the different rates of profit in the various classes of joint stock enterprise, and of the conditions upon which that profit is earned. Year by year we must expect that an increasing proportion of the business of the world will be carried on by joint stock companies. The scale of business increases daily, and the joint stock form is better fitted in many ways for the management of a good deal of that business than individual partnerships. Even in such partnerships the members can often do little more than act as a council to the manager and heads of departments, by whom the real work is done, just as a board of directors supervises and directs its managers. The business is so large that the partners can do little more

than decide matters of principle, and so they form themselves in reality, though not in name, into a joint stock company. The transition into the actual joint stock form soon becomes an easy one, and that form has obvious temptations to capitalists. Under the limited liability Acts they are enabled to reduce the risks they run in unlimited partnerships; they are enabled to hold their property in a form more saleable than it would otherwise possess; they have a convenient machinery for paying the more active amongst their members and their manager a share of the profits, and so giving them an interest in the business. In this way joint stock companies must gradually acquire almost all the kind of business it is suitable for them to transact—especially business which is essentially simple in its nature, and which has great ramifications, so that it could hardly be managed individually, even if the ablest managers that could be found should also happen to be the owners of the requisite capital.

“We commence our series with an analysis of the dividends of joint stock banks in the United Kingdom, omitting the banks which have their head offices in London but whose business is mainly foreign or colonial. These joint stock banks, we think, have a claim to precedence in the matter. It is in banking that the joint stock principle has had its first trial, and in the United Kingdom the experiment has now been successful for many years—in England as regards the Bank of England for nearly two centuries, as regards other joint stock banks for more than half-a-century, and in Scotland for about a century and a-half. In no other business has there been a similar trial of the principle. The United Kingdom has also been more favourably situated than any other country for banking business, having been time out of mind free from invasion and almost from the alarm of it, so that the habit of depositing money with bankers has been fostered for an indefinite period.

“Notwithstanding these reasons for looking to joint stock banks in the United Kingdom as likely to exemplify the success of the joint stock principle, our readers, we believe, cannot fail to be surprised at the account we now lay before them. Out of one hundred and nine joint stock banks in the United Kingdom, of which we give a list, excluding the Bank of England, there are no fewer than eighteen with a capital of 5,827,940*l.* which pay dividends of 20 per cent. and upwards; twenty-eight, with a capital of 12,684,000*l.*, pay dividends of 15 and less than 20 per cent.; forty-four pay dividends of 10 and less than 15 per cent., their capital being 21,917,000*l.*; and fifteen pay dividends of 5 to 10 per cent., their capital being 6,620,000*l.* There are only four companies in the whole list which pay less than 5 per cent., and their capital is little over half-a-million. Altogether the total capital of these banks is 47,632,000*l.*, so that those which pay over 20 per cent. represent about an eighth part of the total capital invested; those which pay between 15 and 20 per cent. represent rather more than a fourth part of the total capital, the two together being about 40 per cent. of the total. In other words, two-fifths of the capital invested in joint stock banks in the United Kingdom earn profits of 15 per cent. and upwards, and a considerable portion upwards of 20 per cent. Of the remainder

of the capital invested, again, by far the larger part, viz., 21,917,000*l.*, or nearly half the total, earns a dividend of 10 to 15 per cent., while amongst those earning less than 10—having only 7 millions of capital in all—a considerable portion, it will be seen from our tables, have dividends of 8 or 9 per cent., or close upon the 10 per cent. line. The Bank of England we deal with separately, as it is in a peculiar position on account of its immense capital, which is not used in the business, but is lent to the Government. Even the large capital of the Bank of England, however, earns a dividend of 9½ per cent.

“The statement is one which may be left to tell its own tale. Anyone can see that a business which yields such results all round must be in singularly favourable conditions as regards profit; nor are the conditions far to seek. Banking, as carried on in England by joint stock banks, is perhaps even a simpler business than banking as carried on anywhere else. There is, or ought to be, no taint of financing or speculation about it. What a banker has to do is to receive the deposits of his customers or their floating balances, and after keeping a reserve, invest what he receives in bills not having too long a period to run, or other easily realised securities. A banker needs great discretion and a cool temper, but it is his business to avoid hazardous and difficult matters. No business could be better adapted to the joint stock form.

“The profits, again, are likely to be large, because the bankers first or early in the field have a practical monopoly. It is an advantage to a customer to deal with a banker in good credit, which means a banker well known and established, while the profit on the ‘turn over’ is so small that there is little margin for new competitors with which to offer cheaper terms so as to tempt away customers. The difference in the allowances for deposit by an old bank and by a new competitor must either be small, in which case no depositor is tempted away, or it must be large, in which case there would be immediate fear of the security. Hence a banker with a good connection has every chance of retaining and increasing it by ordinary management, and as time runs on, the credit changes into a sort of prestige, which is highly profitable. In this way the large profits of our joint stock banks are to be explained. The first banks in the field have acquired and enjoy a practical monopoly. As English business increases, their profits naturally grow with it, till they reach the level which we see.

“That this explanation is the true one, is also confirmed by a remark which Mr. Bagehot made several years ago, viz., that joint stock banks in England which are the most profitable are those which have been the longest established. Our banking readers may compare for themselves the dates of the establishment of the above banks and their rates of profit. In the first two lists there is hardly a bank which has not been many years in existence. We shall notice presently another proof of the few additions which have lately been made to the number of joint stock banks in the United Kingdom, but the fact is very noticeable to those who know the banks when they cast their eyes down the list.

“What cannot fail to strike one, also, is the magnitude of the

sum of undivided profits. The capital of the one hundred and eighteen banks being 47,632,000*l.*, the reserve on which no dividend is paid amounts to 21,297,000*l.* In addition to the high dividends which the banks pay, they have been able to accumulate out of profits a reserve fund, which is employed in their business equally with their capital, and which assists them directly in earning the profit. It assists them also indirectly, by enhancing their credit. The reserve, in other words, is at once a sign of good management on the part of the banks themselves and an instrument of additional profit.

"The statement becomes even more remarkable when we compare it with a former period. In 1869 the present writer compiled a statement, in a similar form, as to the joint stock banks of the United Kingdom. In the list then drawn up there were one hundred and ten banks, as compared with one hundred and nine now; but the lists are substantially the same, the changes being unimportant, and only one or two of them, we may remark, being new banks. The result, as compared with the present account, is that the banks paying 20 per cent. and upwards, show an increase in numbers from fifteen to eighteen, and in capital from 5,303,000*l.* to 5,828,000*l.*; the banks paying between 15 and 20 per cent. have increased in numbers from twenty to twenty-eight, and in capital from 5,439,000*l.* to 12,684,000*l.*; and the banks paying 10 to 15 per cent. have increased in numbers from thirty-six to forty-four, and in capital from 14,057,000*l.* to 21,916,000*l.* On the other hand, the banks paying between 5 and 10 per cent. have declined in number from thirty-six to fifteen, and in capital from 14,182,000*l.* to 6,620,000*l.*; and the banks paying less than 5 per cent., though they have increased in number from three to four, have diminished in capital from 1,350,000*l.* to 564,000*l.* Thus there is an increase since 1869 in the number and capital of the banks paying high dividends at the expense of the class paying lower dividends. A large number of the banks have consequently become more profitable than they were. Their profits have increased with the increasing business of the country in the almost total absence of new competitors.

"The following comparison shows the facts which we have stated in a compact form:—

Comparison of Bank Dividends as Analysed in 1869 and 1878.

[Amounts in Thousands of Pounds.]

	1869.		1878.	
	Number.	Capital.	Number.	Capital.
		£		£
Banks paying 20 per cent. and upwards	15	5,302	18	5,828
" 15 to 20 per cent.	20	5,439	28	12,684
" 10 " 15 "	36	14,057	44	21,916
" 5 " 10 "	36	14,182	15	6,620
" less than 5 "	3	1,350	4	564
Total	110	40,331	109	47,632

"We could not show more plainly, we think, the improvement in banking business which has occurred in the last ten years. It is one among other evidences of the remarkable growth of the country in the interval.

"It is most satisfactory to see that there has been even a greater proportionate increase in the amount of reserve and undivided profit than in the dividends. The total in 1869 was 12,815,000*l.* only. Now it is 21,297,000*l.*, or an increase of 60 per cent. The banks, therefore, have not been dividing up to the hilt, but have been strengthening their position and credit in a remarkable manner.

"As regards one class of banks there is a very noticeable change. By comparison, in 1869 the Scotch banks were generally in a lower class as regards dividend than their English neighbours. The reason apparently was the magnitude of their capital in proportion to the business done. But Scotland must have progressed largely during the last ten years, to judge by the dividends of the banks, which have increased as follows:—

	1869.	1878.
Bank of Scotland	12	14
British Linen Company	13	14
Caledonian	10	14
Clydesdale	10	14
Commercial Bank of Scotland.....	13	15
National "	12	15
North of Scotland Banking Company.....	10	13½
Union Bank of Scotland	10	13
City of Glasgow Bank	8	11½
Royal Bank	8	9½

"This is a general and remarkable increase, and at this rate in a few years all the Scotch banks will be in the class above 15 per cent.

"We should doubt if banking not carried on in the same conditions as banking in the United Kingdom will show so favourable a result, but we must defer any comparison of the results of other systems of banking with those here shown."

Analysis of Joint Stock Bank Dividends. Statement showing the Last Annual Dividend, Amount of Capital Paid-up, and Amount of Reserve and Undivided Profit of the undermentioned Banks in the United Kingdom. [Selected from the Investors' Manual.]

I. BANKS PAYING 20 PER CENT. AND UPWARDS.

Name of Company.	Rate of Dividend per Annum.	Capital Paid-up.	Reserve and Undivided Profits.
	Per cent.	£	£
Birmingham and Midland	22	300,000	277,400
" Joint Stock	20	295,000	401,500
Bury Banking	25	109,080	120,000
Burton, Uttoxeter, and Ashburn	20	130,000	73,800
Carlisle and Cumberland	22	100,000	82,000
" City and District	21	100,000	146,500
Hampshire and North Wilts	20	300,000	161,250
Hull Banking	20	118,860	105,000
Lancaster Banking	30	275,000	276,350
Lloyd's Banking	20	400,000	232,050
Manchester and Liverpool District	20	905,000	675,400
National Provincial	21	1,687,500	934,050
Stourbridge and Kidderminster	20	100,000	107,950
Ulster Banking	20	300,000	357,300
Whitehaven Joint Stock	26½	45,000	39,600
Wilts and Dorset	22	300,000	259,500
York City and County	20	112,500	151,000
Yorkshire Banking	24	250,000	109,000
Total	—	5,827,940	4,509,650

II. BANKS PAYING 15 TO 20 PER CENT.

Name of Company.	Rate of Dividend per Annum.	Capital Paid-up.	Reserve and Undivided Profits.
	Per cent.	£	£
Bank of Liverpool	16	625,000	310,000
" Whitehaven	18½	98,530	91,000
Barnsley Banking	18½	47,168	51,300
Birmingham Banking	15	159,070	154,060
Bradford Commercial	18	250,000	170,600
" Banking	16½	408,000	281,600
" Old Bank	15	424,560	107,300
Commercial of Scotland	15	1,000,000	421,300
County of Stafford	18	60,000	42,700
Devon and Cornwall	18	136,000	99,100
Gloucestershire	13½	450,000	213,800
Halifax and Huddersfield	16½	250,000	182,400
" Joint Stock	18	200,000	191,500
Leamington, Prior's, &c.	15	32,000	12,200
London and County	17	1,500,000	732,000
" Joint Stock	16½	1,200,000	560,700
Manchester and County	15	660,000	413,200
National of Scotland	15	1,000,000	513,500
Northamptonshire Union	15	159,000	150,200
North and South Wales	17½	500,000	258,400
Parr's Banking	17½	392,900	200,350
Provincial of Ireland	15	540,000	198,500
Sheffield	15½	315,000	113,700
" and Rotherham	18½	160,704	88,600
Stamford, Spalding, and Boston	17	250,000	153,200
Union of London	15	1,395,000	426,200
West Riding	15	806,060	191,150
York Union	18	165,000	73,800
Total	—	12,683,992	6,402,360

III. BANKS PAYING 10 TO 15 PER CENT.

Name of Company.	Rate of Dividend per Annum.	Capital Paid-up.	Reserve and Undivided Profits.
	Per cent.	£	£
Aberdeen Town County	13½	252,000	129,000
Ashton, Staleybridge, &c.	11½	50,000	18,250
Bank of Ireland	11½	3,000,000	1,064,000
" Scotland	14	1,250,000	764,500
Belfast Banking	14	250,000	227,350
Birmingham, Dudley, and District	12½	228,160	107,000
Bradford District	12½	297,885	211,800
British Linen	14	1,000,000	411,750
Caledonian	14	150,000	79,150
Chesterfield and North Derbyshire	10	35,000	13,050
City	10	600,000	193,750
" of Glasgow	11½	1,000,000	468,500
Clydesdale	14	1,000,000	506,300
Colonial	14	600,000	86,000
Consolidated	10	800,000	156,300
Coventry Union	12	56,000	18,300
Darlington District	10	68,000	23,000
Derby and Derbyshire	14	62,500	12,000
Exchange and Discount	12½	100,000	54,500
Halifax Commercial	14	150,000	106,000
Hibernian Joint Stock	12	500,000	251,400
Huddersfield	10	425,000	112,550
Leeds and County	10	230,000	56,700
Leicestershire Banking	14	300,000	102,000
Liverpool Commercial	12½	350,000	201,500
" Union	10	600,000	237,000
London and Provincial	12½	200,000	101,600
" Westminster	14	2,000,000	854,700
Manchester and Salford	11½	700,000	240,000
" Joint Stock	11½	102,300	57,000
Merchant Banking	10	875,000	113,500
Munster	14	350,000	163,000
National	12	1,500,000	137,000
Northamptonshire	10	78,000	24,250
North of Scotland	13½	393,780	206,500
Parr's Leicestershire Banking	14	310,000	156,250
Preston	10	100,000	28,000
Royal Bank of Ireland	14½	320,000	207,600
Sheffield and Hallamshire	14	183,200	56,000
" Union	10	180,000	54,000
Union of Manchester	12	440,000	164,000
" Scotland	13	1,000,000	324,500
Wolverhampton and Staffordshire	10	100,000	52,400
Worcester City and County	12½	250,000	102,250
Total	—	21,916,825	8,554,200

IV. BANKS PAYING 5 TO 10 PER CENT.

Name of Company.	Rate of Dividend per Annum.	Capital Paid-up.	Reserve and Undivided Profits.
	Per cent.	£	£
Bank of England	9½	14,553,000	3,029,900
Adelphi	6	130,110	20,650
Alliance	6	800,000	183,200
Central	8	100,000	23,100
Imperial	6	675,000	98,450
Lancashire and Yorkshire	8	300,000	79,250
London and South-Western	8	200,000	33,250
Midland	8	300,000	57,900
National of Liverpool	7	450,000	118,000
North-Western	8	405,000	122,000
Nottingham Joint Stock	5	100,000	36,750
Royal Bank of Scotland	9½	2,000,000	700,000
Staffordshire Joint Stock	8½	175,000	78,602
Swansea	7½	201,236	36,350
Union of Kingston-upon-Hull	7½	33,250	2,200
West of England and South Wales	8	750,000	156,650
Total	—	6,619,596	1,746,352

V. BANKS PAYING LESS THAN 5 PER CENT.

Name of Company.	Rate of Dividend per Annum.	Capital Paid-up.	Reserve and Undivided Profits.
	Per cent.	£	£
London and Yorkshire	4	187,575	1,150
Metropolitan	4	90,150	1,500
North-Eastern	4½	235,950	80,700
Three Towns	2½	50,000	—
Total	—	563,675	83,350

Recapitulation.

	Per cent.	Amount of Capital.	Reserve on which no Dividend is Paid.
		£	£
4 banking companies paying less than 5		563,675	83,350
24 " " 5 to 10		6,619,596	1,746,350
44 " " 10 " 15		21,376,825	8,554,200
18 " " 15 " 20		12,683,992	6,403,060
28 " " 20 and upwards		5,827,940	4,509,650
118		47,072,028	21,296,610
Add reserve		21,296,610	—
		68,368,638	—
Add Bank of England—Capital 14,553,000l.			
" Reserve 3,029,900l.		17,582,900	—
Total		85,951,538	—

IV.—Trade of the Chinese Treaty Ports.

FROM the trade reports published at *Shanghai*, by order of the Inspector-General of Customs,* we learn the comparative importance of the different treaty ports that form the subject of his report. In the three categories, centres of trade, centres of distribution of foreign goods, and centres of collection, *Shanghai* occupies the foremost position. In 1867, the value of its total net trade was 30 millions of taels. It rose to 43 millions in the following year, and then, in 1870, declined to little more than 35 millions. In 1871, it rose to 46 millions, the highest point touched previous to last year. From 1871-74 it steadily declined, having by the latter period receded to 39 millions of taels. In 1875, it rose to 45 millions, and during the period under review (1876), owing chiefly to the abnormally high prices ruling for silk, rose to the unprecedentedly high point of 59 millions. Its position as a centre of distribution for foreign goods has been very unstable. The value of this branch of the trade was, in 1867, $10\frac{1}{2}$ millions of taels. From that time it gradually rose to $14\frac{1}{2}$ millions in 1869; it then suddenly fell to $10\frac{1}{2}$ millions in the following year. Having risen during 1871 to 13 millions, it from that point steadily declined till 1873, when it had fallen as low as $7\frac{1}{2}$ millions. From that year a steady recovery has taken place, the value during 1876 having slightly exceeded 13 million taels. The position of *Shanghai* as a centre of trades is, as is the case with the next two ports on the list, mainly determined as a centre of collection. The value of its exports in 1867 was $17\frac{1}{2}$ millions of taels. In 1868, it rose to 25 millions, but again fell during the following year to 18 millions. From that point it gradually rose till 1872, when it was estimated at 28 millions. The value during the following year continued at much the same figures, but during 1874, it fell to slightly below 25 millions. From that point it rose slightly in 1875, and during the year 1876 gave an upward leap of 10 millions of taels, the value being then estimated at nearly 37 millions of taels.

Second upon the list of centres of trade ranks *Hankow*. The total value of the net trade at this port in 1867 was 27 millions of taels. From this date it steadily rose annually until 1871, when the value was estimated at upwards of 36 millions of taels. During 1872 it fell to 34 millions, at which figures it has since remained, excepting during the year 1874, when the value fell to but little over 30 million taels. As a centre of distribution of foreign goods, *Hankow* occupies but the third position. As a centre of collection, *Hankow* follows *Shanghai*, and the course of this branch of the trade is eminently satisfactory, having been almost uniformly upwards during the past ten years. At about the same distance from *Hankow* as *Hankow* stands from *Shanghai*, follows *Canton* as a centre of trade. During the ten years its position has but little changed. Fourth upon the list of centres of trade comes *Tientsin*,

* The "Reports on Trade at the Treaty Ports in China for the Year 1876," have been recently added to the library, and will be found among the donations acknowledged at a subsequent page in this number of the *Journal*.

a position it holds owing almost entirely to its large consumption of foreign goods. The value of its trade in 1867 was estimated at 13 millions of taels. During the following year it increased to $16\frac{1}{2}$ millions, and from that date until 1876 it has varied, now slightly advancing, now slightly declining, between that sum and $18\frac{1}{4}$ millions of taels. As a centre of distribution of foreign goods it takes second place. As a centre of collection, Tientsin occupies a most unimportant position, ranking eleventh on the list. The value of its export trade has varied during the ten years 1867-76, between three-quarters and $1\frac{1}{2}$ millions of taels. Swatow from eleventh on the list of ports as centres of trade, has risen to fifth during the past ten years. As a centre of collection it is not of much importance. Between 1867 and 1870, when it was seventh upon the list, the value of its exports was $2\frac{1}{2}$ millions. Since 1870 it has gradually risen, and now amounts to exactly 5 millions.

The position of Foochow as a centre of trade has both relatively, and, in fact, declined during the past ten years. Now it ranks sixth upon the list. As a centre of distribution of foreign goods, its importance has never been very great. Kiukiang, though ninth upon the list of ports as centres of trade in 1867, now ranks as seventh. As a centre of distribution for foreign goods, there is little worthy of notice in connection with this port. It stands eleventh upon the list, with a trade which has fluctuated between $2\frac{1}{2}$ and $3\frac{1}{4}$ millions of taels. Ningpo. In 1867 the value of its total net trade was estimated at $12\frac{1}{2}$ millions of taels. From this it steadily rose to 18 millions of taels in 1872, and from that point has just as steadily declined, having reached in 1876 the same level, $12\frac{1}{2}$ millions of taels, at which it stood ten years earlier. But while it stood sixth on the list in 1867, it now stands eighth. Ninth upon the list of centres of trade comes Chinkiang. Amoy occupies the tenth place in the centres of trade. There has been little variation in its value during the ten years. Newchwang occupies the eleventh position as a centre of trade. The value of its total trade shows little of interest, except during 1868, when it reached 6 millions, and 1876, when it reached nearly seven. As a centre of distribution for foreign goods, it ranks tenth upon the list, and as a centre of collection, it possesses about equal importance, that is to say, a trade of about 2 millions. Chefoo occupies the twelfth position. Takow and Tamsui occupy the two lowest positions upon the list, their total trade during the year it has been highest, 1876, only averaging about $2\frac{1}{2}$ millions of taels.

Of the fourteen ports, we thus find one—Shanghai, with a trade valued at upwards of 40 millions of taels; one—Hankow, of between 30 and 40 millions; one port—Canton, with a trade of between 20 and 30 millions; six ports—Tientsin, Swatow, Foochow, Kiukiang, Ningpo, and Chinkiang, with a trade of between 10 and 20 millions of taels; and six ports—Amoy, Newchwang, Chefoo, Takow, Tamsui, and Kiungchow, with a trade of less than 10 millions of taels in value.

V.—Notices of New Books.

(a. *Traité Théorique et Pratique de Statistique*. Par MAURICE BLOCK.*)

M. BLOCK's thorough and exhaustive treatise on statistics will be of the highest interest to all who study that science. The general plan of the work is not really out of harmony with that of M. Georg Mayr, recently noticed in this *Journal*, though at first sight these two distinguished statisticians seem to have adopted different conceptions of their subject. We cannot do more than indicate the substantial agreement on general principles which exists between M. Block and Dr. Mayr, though it may be convenient to call attention to special cases of divergence of opinion. Such differences as to method of treatment as are observable are typified by the fact that whereas M. Block commences with a *partie historique*, with a history of the rise and growth of statistics, Dr. Mayr begins by fixing the position of statistics in the hierarchy of the sciences. Then, too, M. Block's book contains far more criticism than Dr. Mayr's; for the latter's work is intended to form a text book for students, and is published in an educational series, and therefore is not suited for a critical treatise. These differences in form therefore are easily accounted for. M. Block's volume was originally intended merely to contain "the results of a long experience and of incessant researches," but the author subsequently resolved to enlarge his plan of operations, and write a treatise embracing the whole subject. The work is divided into four parts, the historical, theoretical, practical, and the *démographique* part concerning applied statistics. The historical part of M. Block's work is of considerable interest. He passes rapidly over the examples of the collection of statistical facts which occur in the early periods of the history of the human race, and treats the year 1533 as the true *point de départ*. In this year a work was published by Francesco Sansovino, on ancient and modern governments and administrations. It contained very few figures, being almost entirely "descriptive;" but M. Block finds that it met with great success, and was often translated. Having indicated the earliest work that M. Block considered worth much attention on other grounds than that of mere antiquity, we must pass on to more recent times. After speaking of Acherwall, Schloezer, and others of the "descriptive" school, M. Block devotes a few pages to tracing the rise of political arithmetic. He credits Sir William Petty with the invention of this phrase. Davenant and Halley the astronomer, also worked on the same lines as Petty, and several distinguished mathematicians were attracted to a mode of looking at social and political questions which seemed to offer problems connected with their special science. But the first writer who attained anything beyond mere tentative researches was Süssmilch, who, as M. Block remarks, was "véritablement statisticien," and whose work contributed considerably to the progress of the science. By the combination of the "descriptive" with the "arithmetical"

conception of statistics, we obtain the modern science of that name. M. Block next proceeds to notice the collateral fact of the rise of "la statistique officielle," of statistical bureaux, and gives much interesting information as to the present arrangements of various countries in this matter. A chapter on the statistical congresses brings the "historical" part of the volume to an end. M. Block devotes many pages to a discussion on the general merits of congresses. He says, "Les congrès de statistique ont incontestablement rendu de grands, d'inappréciables services à la statistique : ils ont fait comprendre à tous l'importance des comparaisons ; ils ont provoqué de nombreuses études, dont quelques-unes sont d'une très-grande valeur." Besides this, they have facilitated communication between statisticians, which alone is a proof of their utility. But M. Block is of opinion that the Congress of Brussels attempted to go too fast, and its successors have committed the same fault, and also that the *personnel* of the congresses has too often been composed of men, who were eminent, no doubt, but not for the study of statistics. M. Block offers (p. 80) some observations on the best mode of obtaining satisfactory international statistics.

In the part devoted to theory, M. Block commences by distinguishing between the statistical *science*, or demography, and the statistical *method*. It may be remembered that Dr. Mayr prefers to speak of the "numerical" method ; we venture to think that usage justifies the term recognised by M. Block, provided we adopt the word demography as the name of the *science* whose special mode of investigation is the statistical method. M. Block declines to trouble himself or his readers with a criticism of the *sixty-two* or more definitions that have been inflicted on the unfortunate science by various writers. Avoiding all barren controversy as to whether statistics is "descriptive" or "mathematical," he discusses various really important matters connected with its theory. Although the statistical method is employed in various sciences, no one denies, that statistics proper, or *demography*, is a special science ; further on we find M. Block giving an excellent description of it as, "*la science de l'homme vivant en société, en tant qu'elle peut être exprimée par des chiffres.*" This, we may observe, is substantially identical with Dr. Mayr's definition. Herr Rümelin, and some other eminent authorities quoted by M. Block, adopt slightly different modes of expounding the nature of our science. M. Block is apparently familiar with the writings of John Stuart Mill, whom he quotes more than once, especially in connection with the vexed question as to the bearing of so-called statistical laws on the freedom of the will. Many pages of the present volume are devoted to this venerable logomachy. M. Block makes some judicious remarks on the *abuse* of the doctrine of large numbers, and of the theory of means. He mentions a story of Michelet's about a "statistician" who reckoned up the numbers of men killed on the 10th August, 1792, by cannon, musket, and steel, and then added the *mean was so and so*.

The researches of Quetelet into the application of the laws of probability to statistics are touched upon, as also various minutiae

connected with terminology. An important chapter is devoted to the consideration of the question whether statistics can discover actual laws or not. And he decides that statistics can only decide *directly*, that the facts are of such-and-such a kind, and not that they *must necessarily* be so. If we proceed to form a hypothesis to account for the facts thus discovered, statistics will test it for us, though in M. Block's view, it did not produce the idea of the hypothesis. Various causes of error at present exist, some of which are general and belong to human nature at large, such as prejudices and prepossessions of all kinds, while others arise from the confusion caused by the various modes in which, and various periods during which returns are made. This last is a difficulty which will, it may be hoped, become less. There is really no reason why almost all yearly returns should not be taken as commencing with the same day of the same month. M. Block thinks that population, and some other returns, are practically perfect at the present day, but in other branches of statistics there is a good deal to be done. He goes at some length into the subject of mortality and survival, gives specimens of tables representing each of these phenomena, and finally discusses the resolutions of the Congress of Buda-Pesth on this important subject.

It is impossible to deal with the "Partie Pratique" at any length, as it contains so much matter of a purely special character, but it will be found of great interest to those who are acquainted with the subject. We shall merely call attention to a few points. With regard to the question of the relative merits of a centralised and a decentralised system of statistical offices, M. Block is in favour of a modification of the two plans; he would prefer to maintain the special statistical departments (for agriculture, &c.), and would superadd a statistical commission, or general office, in order to obtain the necessary *concentration* of work. An account is given of the statistical system of each of the countries of Europe which possess one. On the subject of statistical commissions, M. Block complains that in most countries which have appointed them, small regard has been paid to their composition. He thinks that commissions in which "*les hommes spéciaux brilleraient par leur absence*" can be of little use. It is worth noting that M. Block mentions with approval the attempt made by Herr Engel, of Berlin, to establish, by means of lectures, a class for students of statistics, with a view to provide persons desirous of entering on an administrative career with the requisite instruction in this important subject. We must pass over much important matter relative to the practical work of managing statistical inquiries, and, in particular, as to the arrangements for taking a census. His advice as to the questions that should be asked of the public is worth quoting; it is desirable "*demander réellement beaucoup, tout en ayant l'air de demander peu.*" He lays great stress on the importance of not allowing the printer of the tables to do as he pleases with them, and he is particularly, and justifiably, severe on tables in which the headings of the columns have to be read upwards (*ces vilaines inscriptions perpendiculaires*).

M. Block's remarks on the use of diagrams and cartograms are instructive. He is far from underrating the value of these instru-

ments of representation, but thinks their use can hardly be dignified with the name of a method. They should be considered merely as illustrations, and, as such, they may be of great use. On the subject of cartograms, he would represent each degree of the same class of phenomena by different shades of the same colour. Dr. Mayr sometimes uses *different colours* for different death-rates, instead of *shades* of one colour, thus rendering his map less easily comprehensible. The "geographical method," of which the same distinguished statistician has made so much use, is held by our author to be a valuable but, not the sole, or even the indispensable, method.

The last portion of M. Block's work is devoted to demography or "applied statistics." The leading features of modern society demographically considered, such as population, including its movement, morality, or more properly criminality, and economy, are expounded and illustrated with tables. All the more striking phenomena are pointed out, and the different methods of disentangling them from the general mass of social phenomena are compared. M. Block rarely commits himself to an *explanation* of the phenomena he calls attention to; he contents himself, in most cases, with establishing the fact of its existence. He also mentions several cases in which statistics have been alleged to *prove* a particular fact, which they are inadequate to prove. The whole of this fourth part is intensely interesting. M. Block considers that the classification of the population by professions is faulty in most countries, and especially in England. He complains that many women and other persons who are indirectly maintained by a particular profession, through their dependence on some one who exercises it, are classed in a separate column, instead of being properly distributed among the respective professions by which they are maintained. M. Block has increased the value of his work by the not unimportant addition of two useful indexes, one of subjects, the other of authorities mentioned.

(b. *The Statistical Account of Bengal*.*)

WE extract the following account of this publication from the *Saturday Review* of 12th January last:—

"Just seventy years ago, as Mr. Hunter reminds us in his preface, the court of directors wrote to Lord Minto recommending him to take steps for carrying into execution a statistical survey of the country; whereupon the Government appointed Dr. F. Buchanan to the duty, giving him 1,500 rupees a-month, or 1,800*l.* a-year, and placing under his orders a staff of efficient and learned assistants and draftsmen. Dr. Buchanan's appointment lasted seven years,

* *A Statistical Account of Bengal*. By W. W. Hunter, B.A., LL.D., Director-General of Statistics to the Government of India. Twenty volumes. London: Trübner and Co.

and cost the country 30,000*l.*, the author having subsequently succeeded to a considerable property in Scotland, on which he took the name of Hamilton. His survey embraced a large part of Eastern Bengal, Assam, the Garo Hills, the districts of Behar and Bhagulpoore, the city of Patna, and the hugh tract of Goruckpoore in the north-western provinces. But here the matter dropped for a time. The materials accumulated during the progress of the survey were forwarded to England in 1816, and remained unnoticed at the India Office in Leadenhall Street until Mr. Montgomery Martin obtained permission to turn them to account. The result was the publication in 1838 of three volumes of considerable bulk, comprising a sort of history of the districts mentioned above. Since that date we have had gazetteers, and divers publications have appeared from time to time illustrative of the agriculture, the climate, the products, and the social characteristics of provinces, districts, or cities in various parts of India. Such works as Dr. Taylor's on Dacca, the Rev. Mr. Sherring's on Benares, Colonel Dixon's on Mairwarra, Mr. Westland's on Jessore, and Mr. Beveridge's on Backergunge, are in their several ways praiseworthy; and, besides statistical reports, there is always in every central, and sometimes in every district, office an enormous quantity of manuscript records on every conceivable subject that might shame Mr. Bright into some recantation of his censures on successive Indian Governments. The misfortune is that these ample materials have had no common purpose in view. Sometimes they were read and acknowledged. Sometimes the compiler could date from them his first rise in the official ladder. Now and then they were printed, circulated, and criticised by the press. But nothing was done on a systematic plan towards the fulfilment of a comprehensive design until Mr. Hunter was specially deputed for the work. This gentleman's literary ability is so unquestionable that he can be depended on to give to shapeless piles of materials, to wholesale statistics, and to the intricate details of caste and agriculture, as much grace and attractiveness as their nature admits. Envy has been excited amongst sundry perspiring Anglo-Indians at Mr. Hunter's employment in a work which enabled him to spend his time by a fire-side in London or Edinburgh, and to take occasional and condescending trips to India, when punkahs cease and fires are endurable, at the pleasantest time of the year. We believe it to be quite true that Mr. Hunter has drawn Indian allowances in an English climate: but we are bound to say that he has not been idle; for he has already, in return for the expenditure of public money, produced no less than twenty volumes, and the books have been compiled on a scale and after a method which, for at least a generation, ought to supersede the necessity of any similar efforts.

"These results, as far as they go, could not have been produced in the same space of time by a single individual, had he rummaged the India Office from top to bottom, or aired the moth-eaten records of the Calcutta Revenue Board. But, backed by the orders of the Government of India, Mr. Hunter had at his disposal the whole body of officials of the 225 districts into which, he informs us, India is now divided. His plan of operations was as follows:—He

arranged his subject under six heads. First came the topography of each district—that is, the area, physical aspect, and natural means of communication. In the second head are comprised the occupations, professions, and castes of the people. The third head deals with agriculture, land tenures, rents, prices and wages, measures and weights. Natural calamities, always gigantic in India, are now thought of sufficient importance to have the fourth heading to themselves. The fifth division is taken up with manufactures, trade and commerce, income and taxation; and the last enters on the field of meteorology, and treats of diseases, epidemics, and their remedies. A series of questions under each of these heads was issued to all district officers; and editors for each province of the empire were appointed to get in the returns, and to supplement them by other materials available in local or central offices. Mr. Hunter himself supervised and controlled the whole; and, in addition, as we understand him, discharged the functions of provincial editor for Bengal and Assam. The practical result of all this questioning, replying, analysing, digesting, supplementing, and exhuming forgotten records is that we have now a set of volumes which give us the history of the whole of the provinces under the Lieutenant-Governor of Bengal, and a supplementary volume regarding fisheries and botany. The merits of the work are certainly not inconsiderable. The order of subjects is retained in each separate volume. Their bulk is not alarming, as each contains roundly about 400 pages. There is an index, besides a heading of chapters. For every three districts there is a map. Much valuable information is compressed into a reasonable compass. The defects, on the other hand, are that there is necessarily a good deal of repetition. We have half-a-dozen accounts of the planting of rice and the sowing of indigo; again and again we are given details of rude native ploughs and other rustic implements which supply the place of the rake and the harrow. In an introductory note we are told just nineteen times that a *seer* means 2 lbs., that one anna is a sixteenth of a rupee, and that—here Mr. Hunter is surely ironical—the rupee, “for ordinary purposes,” may be taken to mean 2s.; while in the description of a ryot’s house and its surroundings—his food, caste, prejudices, and daily occupations—there is iteration without variety, or just such a diversity as amounts to no distinction at all. That a good deal of this may have been unavoidable we admit. It was necessary to make each volume, comprising one, two, or more districts, rotund, smooth and complete in itself. A young assistant sent to learn his duty on the banks of the Brahmaputra does not want to be referred for rudimentary information backwards and forwards, on the principle adopted by many makers of dictionaries, or to be directed to a volume describing a tract bordered by the Poddha or the Jellinghi; and as, after all, the replies have been sifted, digested, and cut down to reasonable dimensions, even reviewers ought not grievously to complain. It should not be forgotten that masses of curious details have been ere this carried away from India by district officers and commissioners, and have either died with the possessors or else have passed out of memory and sight. Quaint local legends, curious vernacular

couplets and proverbs, the transformation of jungly districts into rice fields in less than a decade, the silting up of plains, the denudation of timber, violent and arbitrary changes in the courses of rivers, the disappearance of wild animals of the larger kind, the gradual fluctuations of particular native industries, the rise and discovery of strange crimes, the slow extension of secondary wants—on these and a hundred other topics there exist, besides published reports, stores of information in the memories or the note books of Englishmen for which the compilers of these volumes, had they been able to get at them, might have been indebted. Nothing is so transient as local Indian knowledge, or perishes sooner than the traditions of office. In no country or dependency has work so often been done twice. Deaths are sudden; important and half-executed designs are interrupted by sickness and enforced absence; the exigencies of administration carry men away west and east, north and south with ruthless disregard of the continuity of evidence; and successors eager to penetrate below the surface of native society and to vary the repulsive details of crime by philological, social, or antiquarian research, pass months and years in mastering subjects which have been explored by their predecessors, or in collecting data which have already been stored up. It is impossible to read some of the best informed of Indian newspapers without perceiving that the writers are often at fault in dealing with the past. Each generation is in fact merely encamped in India; and an official whom evil or good fate has attached the longest to one set of duties, or to one corner of the empire, must smile on comparing even his prolonged tenure of office with an announcement that the vicar of Broad Chalke has departed this life after fifty-five years' enjoyment of his rectory, or that Mr. Linkinwater, after about the same period, has ceased to be the faithful and devoted servant of some celebrated firm in the city.

“But, whatever may be the omissions or shortcomings of this work, it is certain that it supplies a blank in Indian official publications. There will henceforth always be a definite starting-point for future explorers; a nucleus for the accumulations of local antiquaries; a standard according to which generations of reformers may measure their degrees of advancement, and draw out schemes of yet wider and more enduring conquests over ignorance and sloth. The districts contained in the volumes before us represent, as we have stated, the Lieutenant-Governorship of Bengal. In twenty-eight the Bengali language is current; in twelve the Hindi, or Hindostanee; and in four the Uriya. Besides these regulation districts, there are outlying tracts such as the tributary Mahals in Cuttack and on the south-west frontier, the hill districts of Chittagong, independent Tipperah, the Garo Hills, the Sunderbunds, the Bhotan Doars, and the hill territory of Darjeeling. The sameness of the compilation is agreeably broken and varied by descriptions of these strange regions, where old Rajas with endless genealogies take us back to a period anterior to the Mahomedan invasion, where dense jungles still afford shelter to the elephant or the rhinoceros, and where the backwardness of the inhabitants allows of some scope for that personal government which, in more settled provinces,

has been smothered under the pressure of rigid circulars and inelastic laws.

"One feature in this work must strike any reader conversant with any portion of India. It is called *A Statistical Account of Bengal*. It is in reality a history of two phases of national and social life. There is, first, the district as we found it, with its primæval jungle and its primitive agriculture; its endless multiplicity of castes; its indigenous manufactures; its profusion of natural resources, wasted or misused, or transported by the slowest of vehicles over the worst of cart tracts; its physical aspect little, if at all, changed since the days when the Minister of Akbar placed the capital of Bengal near the jungles of Maldah, or when Bernier touched at a Portuguese settlement on the banks of the Ganges, to which he gave the strange name of Ogouli. Then comes the history of institutions which were the inseparable accompaniments of our own political ascendancy, or engrafted by us on the indigenous tree. Statistics of gaols, schools, land revenue, cantonments, are obviously of this latter kind. In another twenty years a great deal of these statistics will become, we do not say worthless, but liable to great modification. The account of the climate, the physical features, the settlement of the land revenue, will be valuable for all time. In short, Mr. Hunter's labours have two very distinct objects in view. It is very desirable that the Government should possess a record showing what are the capabilities, products, population, early history, and local peculiarities of each district under its control. It is also important that we should put our hand on returns proving how many schools at such a period of our rule were attended by how many scholars; in what towns or villages municipal institutions had made any progress; or what was then the proportion of Mahomedans to Hindus, or of Christians to both. If there is any incongruity in the conjunction of absurd legends about a Mahomedan saint or the origin of Sangar Island with the statistics of the traffic on the Eastern Bengal Railway, in the specification of the white paint or the white clay with which a Baishnab must adorn his nose and daub his person, side by side with the returns of the inspector of police, this is no more than is occasioned by our mere presence in India. The newest products of modern civilisation lie there in queer proximity to customs and traditions which are as old as Manu. When, at the bidding of Lord Dalhousie, Sir William Brooke set up the first telegraph line ever known in India, one of the earliest messages despatched by an isolated signaller from Sangar Island to Calcutta was as follows:— 'A tiger has just killed a buffalo close to the station-house.'"

(c. *New Books on Political Economy.*)

WORKS on political economy and currency have been coming rather thickly from the press of late. In addition to Mr. Moffat's *Economy of Consumption*, and Mr. Rowland Hamilton's *Money and*

Value, which must remain over for future notice, we have two large works on money from America. It is a curious coincidence that three books, all entitled *Money*, should thus have appeared within the last few months.

Mr. Henry V. Poor's *Money and its Laws*, embracing a history of monetary theories and a history of the currencies of the United States, is perhaps best described by the name of its author. It is impossible to deny that there is much of value in the book, seeing that it contains long and numerous extracts from all the best writers, and we dare say that a careful and discriminating reader might derive some information from the history of the American currency, though he would much more safely trust to Professor Sumner's work on that subject. As to Mr. Poor's own opinions their value is as nearly as possible *nil*, perhaps less than *nil*. As we cannot derive knowledge from his vague and confused discussions, we must be content to get a little amusement out of his personal remarks. He reviles the whole circle of economists. Of Thomas Tooke he says that it was probably from an examination of his works that Mr. Gladstone declared the study of money to be a fruitful cause of insanity. The late Mr. Gilbart seems to him a striking instance of a voluminous writer on money, without any proper comprehension of its laws. Professor Bonamy Price is quoted at extraordinary length, but declared to have reached the lowest depth. American economists fare no better; a book of Professor Francis Bowen, one of the most eminent American economists, is described as "a feeble and garrulous restatement of Adam Smith, Stewart, Ricardo, Tooke, M'Culloch, and Mill, to whose absurdities and errors an emphasis is given by no means to be found in the originals." At first it might seem as if Mr. Poor had a rather better opinion of John Stuart Mill; but this idea is dashed to the ground when we come to p. 331, where Mill's account of the precious metals is implied to be "inadequate and puerile to the last degree," and a footnote is added upon his incapacity for scientific research, his infirmity of temper, &c.

It is pleasant to turn from Mr. Poor's diatribes to the very different work of Professor Francis A. Walker, Professor of Political Economy in the Sheffield Scientific School of Yale College, United States. The book is called simply *Money*, and contains the substance of a course of lectures delivered last spring, in the John Hopkins University at Baltimore. Professor Walker, who is of course not to be confused with Amasa Walker, another eminent American economist, is already favourably known in England by his "Wages Question," a treatise on wages and the wages class. This new work can scarcely fail to add to his reputation. Professor Walker makes great use of the writings of other economists, almost as freely indeed as Mr. Poor, but in a far different way. It is candour and modesty, rather than incapacity, which must have led him to bring the opinions of other writers so impartially before his students, and the manner in which their views are compared is well fitted to elicit the truth. Mr. Walker goes over the whole field of

his extensive and intricate subject, and it would be difficult to find a work of the like extent (550 pages) better fitted to give a sound knowledge of currency, or rather "money," Professor Walker having decided on "the definitive abandonment of the term currency." It would be absurd to attempt in this place to enter upon a discussion of Professor Walker's views upon such subjects as bimetallism, inconvertible paper money, and the like. But we may note that he holds a very low opinion of the capacity of the United States Government to legislate upon matters of this kind, speaking of "the utter lack of consequence in the financial legislation of Congress," and anticipating nothing but confusion and disaster, when laws concerning fundamental policy are thus heedlessly enacted and repealed. This was of course written before the passing of the Bland Act, which can scarcely have led him to modify his opinion.

Among recent additions to works on the cambist's art, may be mentioned Hermann Schmidt's *Handbook of Foreign Exchanges, Bullion, Stocks, and Shares*, based upon the new currencies.

(d. *The Official Year Book of Victoria.*)

MR. NEWMARCH, F.R.S., at the January meeting of the Society, drew attention to the *Official Year Book* for 1878 and former years of the colony of Victoria (Australia), as compiled and published by Mr. Hayter, the Government statist of the colony. Mr. Hayter is one of the honorary members of this Society. The handbook is almost a perfect model of what such a publication should be. The contents are most carefully classified according to subjects, and the tabular details are arranged scientifically and skilfully. There is also as much descriptive discussion as is required to bring out the true bearing of the figures. The speaker said it had been his painful duty to examine handbooks, official and otherwise, and to be afflicted by the careless and unskilful manner in which they were framed. But Mr. Hayter's work, on the contrary, was not marked by any of these defects, and Mr. Newmarch would go so far as to say, that the statistical department of the Imperial Government might with advantage follow to a large extent in Mr. Hayter's steps, and profit by his example.

VI.—*Additions to the Library during the Quarter ended
31st March, 1878.*

Donations.	By whom Presented.
AUSTRIA AND HUNGARY—	
Statistisches Jahrbuch des K. K. Ackerbau-Ministeriums für 1876. Heft 4; der Bergwerksbetrieb Oesterreichs. Second Lieferung. 199 pp., 8vo. Wien, 1877	K. K. Statistischen Central Commission
Statistisches Jahrbuch für 1875, Heft 8, und für 1876, Heft 11. 119 and 24 pp., 8vo. Wien, 1878	
Statistisches Jahrbuch für Ungarn. 5 Jahrgang, 1875. Hefte 9 und 10. 85 and 75 pp., 4to. Budapest, 1877	Kön. Ung. Statistisches Bureau
Statistisches Handbüchlein der kgl. Hauptstadt Prag, für das Jahr 1876. 5 Jahrgang. Deutsche Ausgabe. 186 pp., 8vo. Prag, 1877	La Commission de Statistique de la Ville Capital de Prague
Another Copy in the Bohemian language	
BELGIUM—	
Annuaire Statistique de la Belgique. 2 ^e —5 ^e années, 1871-74. Maps. 8vo. Brussels.....	Ministère de l'Intérieur
Documents Statistiques publiés par le Département de l'Intérieur. Tomes viii, ix, et xii, 4to. Brussels	"
Population, Mouvement de l'état civil, pendant l'années 1845-46. Folio. Brussels.....	"
CHINA. Reports on Trade at the Treaty Ports in, for 1876, with Appendix. 199 pp., maps and diagrams, 4to. Shanghai, 1877	
	B. Hart, Esq., Inspector-General of Customs, China
FRANCE—	
Paris. Bureau des Longitudes. Annuaire pour l'an 1878. 715 pp., photograph, 18mo. Paris	Le Bureau des Longitudes
L'Economiste Français. (Current numbers)	The Editor
Revue Bibliographique Universelle	"
Partie Littéraire. Vol. xxii, Nos. 1 and 2.	
Partie Technique. Vol. xxi, No. 12, and vol. xxiv, No. 1.	
Société de Statistique de Paris, Journal de la. Vol. xix, Nos. 1 and 2.....	La Société
GERMANY—	
Monatshefte zur Statistik des Deutschen Reichs, 1877. Band 25. Hefte 11 und 12. Und 1878, Band 30, Heft 1, 4to. Berlin	Kaiserlichen Statistischen Amt. Berlin
Prussia. Preussische Statistik. Die Bewegung der Bevölkerung im Preussischen Staate während des Jahres 1876. xiv, folio. Berlin, 1878	Königlich Preuss. Statistisches Bureau
Prussia. Zeitschrift des Königlich Preussischen Statistischen Bureaus. 17 Jahrgang, 1877. Heft 4 (October—December), folio. Berlin, 1877	Dr. Engel, Kön. Preuss. Statistisches Bureau

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REGISTRATION OF THE UNITED KINGDOM.

No. I.—ENGLAND AND WALES.

MARRIAGES—QUARTER ENDED SEPTEMBER, 1877.

BIRTHS AND DEATHS—QUARTER ENDED DECEMBER, 1877.

A.—*Serial Table of MARRIAGES, BIRTHS, and DEATHS, returned in the Years 1877-71, and in the QUARTERS of those Years.*

Calendar YEARS, 1877-71:—Numbers.

Years	'77.	'76.	'75.	'74.	'73.	'72.	'71.
Marriages No.	—	201,835	201,212	202,010	205,615	201,267	190,112
Births..... „	887,055	887,464	850,607	854,956	829,778	825,907	797,428
Deaths „	500,348	510,308	546,453	526,632	492,520	492,265	514,879

QUARTERS of each Calendar Year, 1877-71.

(I.) MARRIAGES:—*Numbers.*

<i>Qrs. ended last day of</i>	'77.	'76.	'75.	'74.	'73.	'72.	'71.
March..... No.	89,755	41,757	42,376	41,413	41,217	40,539	36,305
June „	49,054	51,218	48,410	52,827	53,408	50,380	48,831
September „	47,732	49,135	49,826	49,144	49,709	49,818	46,536
December „	—	59,725	60,600	58,626	61,281	60,530	58,440

(II.) BIRTHS:—*Numbers.*

<i>Qrs. ended last day of</i>	'77.	'76.	'75.	'74.	'73.	'72.	'71.
March..... No.	230,036	229,980	214,862	214,514	215,744	208,752	209,523
June „	223,220	225,866	214,939	217,598	206,516	208,790	201,165
September „	213,190	216,167	211,109	210,323	204,167	201,746	193,271
December „	220,609	215,451	209,697	212,521	203,351	206,619	193,469

(III.) DEATHS:—*Numbers.*

<i>Qrs. ended last day of</i>	'77.	'76.	'75.	'74.	'73.	'72.	'71.
March..... No.	135,000	142,269	162,256	136,518	132,432	134,952	138,393
June „	131,289	126,212	130,999	123,907	118,582	120,835	120,793
September „	109,565	119,909	121,547	124,253	114,676	118,927	121,332
December „	124,494	121,918	131,651	141,954	126,830	117,551	134,361

*Annual Rates of MARRIAGES, BIRTHS, and DEATHS, per 1,000 PERSONS
LIVING in the Years 1877-71, and the QUARTERS of those Years.*

Calendar YEARS, 1877-71:—General Ratios.

YEARS.....	'77.	Mean '67-76.	'76.	'75.	'74.	'73.	'72.	'71.
Estmtd. Popln. of England in thousands in middle of each Year....	24,547,	—	24,244,	23,944,	23,649,	23,356,	23,068,	22,783,
Persons Mar- ried	—	16·7	16·6	16·8	17·1	17·6	17·5	16·7
Births	36·1	35·6	36·5	35·5	36·2	35·5	35·8	35·0
Deaths.....	20·4	22·0	21·0	22·8	22·3	21·1	21·3	22·6

QUARTERS of each Calendar Year, 1877-71.

(I.) PERSONS MARRIED:—Ratio per 1,000.

Qrs. ended last day of	'77.	Mean '67-76.	'76.	'75.	'74.	'73.	'72.	'71.
March	13·1	13·8	13·8	14·4	14·2	14·3	14·1	12·9
June.....	16·0	17·0	16·9	16·2	17·9	18·3	17·5	17·2
September	15·4	16·3	16·1	16·5	16·5	16·9	17·1	16·2
December	—	19·7	19·5	20·1	19·7	20·8	20·8	20·4

(II.) BIRTHS:—Ratio per 1,000.

Qrs. ended last day of	'77.	Mean '67-76.	'76.	'75.	'74.	'73.	'72.	'71.
March	38·0	37·0	38·0	36·4	36·8	37·5	36·3	37·3
June.....	36·5	36·2	37·4	36·0	36·9	35·5	36·3	35·5
September	34·5	34·7	35·4	35·0	35·3	34·7	34·7	33·7
December	35·7	34·6	35·3	34·7	35·7	34·5	35·5	33·7

(III.) DEATHS:—Ratio per 1,000.

Qrs. ended last day of	'77.	Mean '67-76.	'76.	'75.	'74.	'73.	'72.	'71.
March	22·3	24·3	23·5	27·5	23·4	23·0	23·5	24·7
June.....	21·5	21·1	20·9	21·9	21·0	20·4	21·0	21·3
September	17·7	20·8	19·6	20·1	20·8	19·5	20·5	21·1
December	20·1	21·9	20·0	21·8	23·8	21·5	20·2	23·4

B.—Comparative Table of CONSOLS, PROVISIONS, PAUPERISM, and COAL in each of the Nine QUARTERS ended December, 1877.

1 Quarters ending	2 Average Price of Consols (for Money).	3 Average Rate of Bank of England in Dis- count.	4 Average Price of Wheat per Quarter in England and Wales.	5 6 Average Prices of Meat per lb. at the Metropolitan Meat Market (by the Carcass), with the Mean Prices.		7 Average Prices of Potatoes (York Regents) per Ton at Waterside Market, Southwark.	8 9 Pauperism. Quarterly Average of the Number of Paupers relieved on the last day of each week.		10 Sea- borne Coal in London Market per Ton.
				Beef.	Mutton.		In-door.	Out-door.	
1875 Dec. 31	£ 94½	3·2	s. d. 46 7	d. d. d. 5½—8½ 6½	d. d. d. 6—9½ 7½	s. s. s. 106—128 117	136,124	546,251	s. d. 22 6
1876 Mar. 31	94½	4·1	43 8	5½—8 6½	5½—9 7½	122—151 136	145,088	558,026	19 9
June 30	95½	2·2	45 10	5—8½ 6½	5—10 7½	125—170 147	134,357	535,419	18 8
Sept. 30	95½	2·0	47 1	5½—8½ 6½	5½—9½ 7½	—	130,347	517,196	19 —
Dec. 31	95½	2·0	48 2	4½—8 6½	5½—9 7½	—	141,929	514,722	19 —
1877 Mar. 31	95½	2·0	51 4	4½—7½ 6½	5—9½ 7½	138—172 155	152,778	532,697	16 8
June 30	94½	2·9	61 5	4½—8½ 6½	4½—9½ 7	136—174 155	143,674	523,878	18 2
Sept. 30	95½	2·4	62 —	4½—8½ 6½	4½—9½ 7½	97—126 111	139,211	509,110	17 7
Dec. 31	96½	4·5	52 4	8½—8 5½	4½—8½ 6½	152—174 163	151,709	512,286	18 3

C.—General Average Death-Rate Table:—Annual Rate of Mortality to 1,000 of the Population in the Eleven Divisions of England.

Divisions.	Average Annual Rate of Mortality to 1,000 Living in						
	Ten Years, 1861-70.	1876. Quarters ending		1877. Quarters ending			
		Sept.	Dec.	March.	June.	Sept.	June.
England and Wales	22·4	19·6	20·0	22·3	21·5	17·7	20·1
I. London	24·3	21·5	21·4	23·6	22·2	19·1	22·4
II. South-Eastern counties	19·1	16·5	16·4	18·3	17·0	14·9	15·5
III. South Midland „	20·2	17·0	17·1	18·9	18·1	15·0	17·0
IV. Eastern counties	20·1	16·9	16·8	19·9	19·9	16·4	17·4
V. South-Western counties	19·9	16·4	17·4	20·7	18·9	15·5	17·7
VI. West Midland „	21·8	19·1	19·7	22·6	21·2	17·1	20·4
VII. North Midland „	20·8	20·5	19·5	21·9	21·7	18·0	18·8
VIII. North-Western „	26·3	22·9	24·8	26·1	25·1	20·7	24·5
IX. Yorkshire	24·0	21·4	21·4	22·7	22·0	18·2	21·2
X. Northern counties	22·7	20·2	19·4	22·5	21·8	18·4	20·1
XI. Monmouthshire and Wales	21·6	17·6	19·2	22·3	24·7	17·6	19·6

D.—Special Average Death-Rate Table:—ANNUAL RATE of MORTALITY per 1,000 in TOWN and COUNTRY DISTRICTS of ENGLAND in each Quarter of the Years 1877-75.

	Area in Statute Acres.	Population Enumerated. 1871.	Quarters ending	Annual Rate of Mortality per 1,000 in each Quarter of the Years			
				1877.	Mean '87-78.	1876.	1875.
In 134 Districts, and 57 Sub-districts, comprising the Chief Towns	3,184,419	12,900,142	March ..	23·8	26·1	25·8	28·8
			June	22·7	22·4	22·1	22·7
			Sept.	19·2	23·4	21·7	22·3
			Dec.	22·2	24·4	21·9	23·9
			Year	22·0	24·1	22·8	24·4
In the remaining Districts and Sub-districts of England and Wales, comprising chiefly Small Towns and Country Parishes	34,134,802	9,812,124	Year	18·2	19·3	18·6	20·7
			March ..	20·2	21·0	21·1	25·7
			June	19·7	19·3	19·2	20·8
			Sept.	15·7	17·2	16·7	17·2
			Dec.	17·2	18·6	17·3	18·9

Note.—The three months January, February, March, contain 90, and in leap year 91 days; the three months April, May, June, 91 days; and each of the last two quarters of the year, 92 days. For this inequality a correction is made in calculating the rate of mortality in the different quarters of the year.

E.—Special Town Table:—POPULATION; BIRTHS, DEATHS; MEAN TEMPERATURE and RAINFALL in the Fourth Quarter of 1877, in TWENTY-THREE Large Towns.

Cities, &c.	Estimated Population in the Middle of the Year 1877.	Births in 13 Weeks ending 29th Dec., 1877.	Deaths in 13 Weeks ending 29th Dec., 1877.	Annual Rate to 1,000 Living during the 13 Weeks ending 29th Dec., 1877.		Mean Temperature in 13 Weeks ending 29th Dec., 1877.	Rainfall in Inches in 13 Weeks ending 29th Dec., 1877.
				Births.	Deaths.		
Total of 23 towns in U. K.	8,180,497	74,749	46,809	36·7	23·0	44·8	8·38
London	3,533,484	31,897	19,689	36·2	22·4	45·0	6·73
Brighton	102,264	763	483	29·9	19·0	45·7	12·36
Portsmouth.....	127,144	964	535	30·4	16·9	47·0	7·68
Norwich	84,023	708	436	33·6	20·8	45·0	6·10
Plymouth	72,911	544	441	30·0	24·3	47·2	11·54
Bristol	202,950	1,797	1,081	35·5	21·4	45·1	10·47
Wolverhampton.....	73,389	691	487	37·8	26·6	41·8	5·76
Birmingham	377,436	3,936	2,304	41·9	24·5	—	—
Leicester	117,461	1,145	530	39·1	18·1	44·0	5·49
Nottingham	95,025	867	514	36·6	21·7	43·4	5·94
Liverpool	527,083	4,993	3,404	38·0	25·9	45·6	10·85
Manchester	359,213	3,355	2,419	37·5	27·0	—	—
Salford	162,978	1,719	966	42·3	23·8	44·0	12·82
Oldham	103,559	955	577	37·0	22·4	—	—
Bradford	179,315	1,630	977	36·5	21·9	44·4	10·74
Leeds	298,189	2,973	1,722	40·0	23·2	45·0	8·42
Sheffield	282,130	2,759	1,600	39·3	22·8	44·7	8·91
Hull	140,002	1,490	704	42·7	20·2	43·0	5·90
Sunderland	110,382	1,182	621	43·0	22·6	45·8	4·67
Newcastle-on-Tyne	142,231	1,339	776	37·8	21·9	—	—
Edinburgh	218,729	1,821	1,191	33·4	21·9	43·8	6·76
Glasgow	555,933	5,025	3,160	36·8	22·8	45·1	12·46
Dublin	314,666	2,201	2,192	28·1	28·0	46·2	6·23

F.—Divisional Table:—MARRIAGES Registered in Quarters ended 30th September, 1877-75; and BIRTHS and DEATHS in Quarters ended 31st December, 1877-75.

1 DIVISIONS. (England and Wales.)	2 AREA* in Statute Acres.	3 POPULATION, 1871. (Persons.)	4 5 6 MARRIAGES in Quarters ended 30th September.		
			1877.	1876.	1875.
			No.	No.	No.
ENGLD. & WALES....Totals	37,319,221	22,712,266	47,732	49,135	49,817
I. London	75,362	3,254,260	9,165	9,002	9,124
II. South-Eastern	3,994,431	2,167,726	4,030	4,110	3,920
III. South Midland	3,201,325	1,442,654	2,287	2,308	2,348
IV. Eastern	3,211,441	1,218,728	1,736	1,878	1,837
V. South-Western	4,981,170	1,880,777	3,026	3,144	3,197
VI. West Midland	3,945,460	2,721,931	5,421	5,586	5,590
VII. North Midland	3,535,445	1,406,935	2,823	2,822	2,919
VIII. North-Western	1,998,914	3,389,044	8,558	8,729	8,987
IX. Yorkshire	3,702,384	2,441,762	5,327	5,790	5,808
X. Northern	3,547,947	1,865,041	2,792	3,080	3,309
XI. Monmthsh. & Wales	5,125,342	1,420,408	2,567	2,686	2,778

7 DIVISIONS. (England and Wales.)	8 9 10 BIRTHS in Quarters ended 31st December.			11 12 13 DEATHS in Quarters ended 31st December.		
	1877.	1876.	1875.	1877.	1876.	1875.
	No.	No.	No.	No.	No.	No.
ENGLD. & WALES....Totals	220,609	215,451	209,505	124,494	121,918	131,547
I. London	31,897	31,891	30,534	19,689	18,799	20,839
II. South-Eastern	18,805	18,255	17,372	9,406	9,752	10,210
III. South Midland	12,497	12,053	11,824	6,641	6,628	7,150
IV. Eastern	10,117	10,104	9,654	5,563	5,355	5,997
V. South-Western	14,147	13,454	13,410	8,530	8,366	9,409
VI. West Midland	26,666	26,748	25,369	14,929	14,289	15,048
VII. North Midland	14,159	14,011	13,181	7,049	7,221	7,801
VIII. North-Western	37,008	34,936	34,736	22,829	22,388	23,325
IX. Yorkshire	26,781	25,768	25,354	14,596	14,471	15,658
X. Northern	15,093	15,155	15,152	7,825	7,424	8,450
XI. Monmthsh. & Wales	13,439	13,076	12,969	7,437	7,225	7,660

* These are revised figures, and will be found to differ somewhat from those first published.

G.—General Meteorological Table, Quarter ended 31st December, 1877.

[Abstracted from the particulars supplied to the Registrar-General by JAMES GLAISHER, Esq., F.R.S., &c.]

1877. Months.		Temperature of										Elastic Force of Vapour.		Weight of Vapour in a Cubic Foot of Air.	
		Air.			Evaporation.		Dew Point.		Air— Daily Range.		Water of the Thames				
		Mean.	Diff. from Average of 106 Years.	Diff. from Average of 36 Years.	Mean.	Diff. from Average of 36 Years.	Mean.	Diff. from Average of 36 Years.	Mean.	Diff. from Average of 36 Years.		Mean.	Diff. from Average of 36 Years.	Mean.	Diff. from Average of 36 Years.
Oct.	48·6	—0·5	—1·6	45·5	—2·7	49·1	—4·0	17·6	+2·9	52·0	In. ·269	In. —·045	Gr. 3·1	Gr. —0·6	
Nov. ...	45·5	+3·2	+1·9	43·5	+2·1	41·2	+1·7	12·7	+1·1	47·6	·260	+·013	3·0	+0·2	
Dec. ...	40·8	+1·7	+0·6	39·2	+0·5	37·1	+0·2	10·0	+0·6	41·4	·221	·000	2·6	0·0	
Mean ...	45·0	+1·5	+0·3	43·7	0·0	40·1	—0·7	13·4	+1·5	47·0	·250	—·011	2·9	—0·1	

1877. Months.		Degree of Humidity.		Reading of Barometer.		Weight of a Cubic Foot of Air.		Rain.		Daily Horizontal Move- ment of the Air.	Reading of Thermometer on Grass.					
		Mean.	Diff. from Average of 36 Years.	Mean.	Diff. from Average of 36 Years.	Mean.	Diff. from Average of 36 Years.	Amnt.	Diff. from Average of 63 Years.		Number of Nights it was			Low- est Read- ing at Night.	High- est Read- ing at Night.	
											At or below 30°.	Be- tween 30° and 40°.	Above 40°.			
Oct.	79	— 8	In. 29·849	In. +·151	Gr. 544	Gr. + 5	In. 1·7	In. —1·1	Miles. 301	9	17	5	20·3	45·5		
Nov. ...	86	— 2	29·517	—·233	541	— 7	3·4	+1·1	378	9	14	7	24·4	45·0		
Dec. ...	87	— 1	29·263	+·073	553	+ 1	1·8	—0·2	301	14	14	3	24·0	41·8		
Mean ...	84	— 4	29·743	—·003	546	0	Sum 6·9	Sum —0·2	Mean 327	Sum 32	Sum 45	Sum 15	Lowest 20·3	Highest 45·5		

Note.—In reading this table it will be borne in mind that the sign (—) minus signifies below the average, and that the sign (+) plus signifies above the average.

The mean temperature of the air for October was 48°·6, being 0°·5 and 1°·6 below the averages of the preceding 106 years and 36 years respectively. It was 4°·2 lower than the value in 1876.

The mean temperature of the air for November was 45°·5, being 3°·2 and 1°·9 above the averages of the preceding 106 years and 36 years respectively. It was higher than any value recorded back to 1863. In the preceding 106 years there have been thirteen instances when the mean temperature of November was as high as in the present year, viz., 45°·5.

The mean temperature of the air for December was 40°·8, being 1°·7 and 0°·6 above the averages of the preceding 106 years and 36 years respectively. It was 3°·3 lower than the value in 1876, and 2°·1 higher than that in 1875.

The mean high day temperatures of the air were 2°·9 and 0°·4 above their respective averages in November and December, but 0°·4 below in October.

The mean low night temperature of the air for October was 3°·3 below the average; that for November was 1°·8 above the average; and that for December was the same as the average.

H.—Special Meteorological Table, Quarter ended 31st December, 1877.

1	2	3	4	5	6	7	8	9
NAMES OF STATIONS.	Mean Pressure of Dry Air reduced to the Level of the Sea.	Highest Reading of the Thermo- meter.	Lowest Reading of the Thermo- meter.	Range of Tem- perature in the Quarter.	Mean Monthly Range of Tem- perature.	Mean Daily Range of Tem- perature.	Mean Tem- perature of the Air.	Mean Degree of Hu- midity.
	in.	°	°	°	°	°	°	
Guernsey.....	29·665	65·0	35·0	30·0	21·7	8·4	49·8	85
Osborne	29·649	67·6	27·2	40·4	30·2	13·8	46·6	91
Barnstaple	29·637	73·0	32·0	41·0	29·7	11·1	48·6	83
Blackheath	29·657	69·0	28·3	40·7	31·4	12·9	45·5	84
Oxford.....	29·647	66·3	28·1	38·2	30·0	11·9	45·3	84
Norwich	29·596	66·0	27·5	38·5	29·2	9·8	45·1	94
Llandudno	29·549	69·0	33·6	35·4	26·9	9·9	47·7	81
Liverpool	29·544	68·8	30·0	38·8	26·5	9·3	45·8	87
Stonyhurst	29·545	67·0	25·0	42·0	31·5	11·5	43·8	87
Bradford.....	29·572	62·0	30·6	31·4	25·4	8·7	44·5	84
North Shields.....	—	61·4	25·0	36·4	30·0	10·5	43·0	86
Milltown (Ireland)	29·495	62·0	28·0	34·0	28·3	11·3	43·9	86

10	11	12	13	14	15	16	17	18
NAMES OF STATIONS.	WIND.					Mean Amount of Cloud.	RAIN.	
	Mean estimated Strength.	Relative Proportion of					Number of Days on which it fell.	Amount Collected.
		N.	E.	S.	W.			
								in.
Guernsey.....	1·6	7	5	8	11	6·4	64	15·34
Osborne	0·2	5	3	8	14	6·0	54	11·84
Barnstaple	1·3	5	4	11	11	4·7	69	16·83
Blackheath	0·8	5	3	10	13	5·9	51	7·40
Oxford	0·8	4	2	11	14	6·5	71	7·32
Norwich	—	4	3	13	11	—	47	6·52
Llandudno	1·0	4	2	9	16	6·5	61	13·60
Liverpool	1·5	3	5	11	12	6·9	66	11·35
Stonyhurst	1·8	3	2	10	15	7·4	74	19·60
Bradford.....	0·8	4	3	11	13	7·1	63	11·51
North Shields.....	1·7	3	1	6	15	5·7	60	6·18
Milltown (Ireland)	2·0	3	3	17	8	5·2	63	8·74

No. II.—SCOTLAND.

MARRIAGES, BIRTHS AND DEATHS IN THE QUARTER

ENDED 31ST DECEMBER, 1877.

I.—Serial Table :—Number of Births, Deaths, and Marriages in Scotland, and their Proportion to the Population estimated to the Middle of each Year, during each Quarter of the Years 1877-73 inclusive.

	1877.		1876.		1875.		1874.		1873.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
1st Quarter—										
Births	31,256	3'51	32,333	3'67	31,096	3'56	29,837	3'45	30,210	3'52
Deaths	20,525	2'31	21,294	2'41	25,116	2'87	20,775	2'40	21,443	2'50
Marriages ..	5,977	0'67	6,663	0'75	6,369	0'73	6,777	0'78	6,618	0'77
Mean Temperature }	38°·5		37°·9		38°·7		40°·9		38°·1	
2nd Quarter—										
Births	33,355	3'75	33,088	3'75	32,294	3'70	32,295	3'73	31,283	3'64
Deaths	19,586	2'20	19,270	2'18	19,518	2'23	19,640	2'27	19,931	2'32
Marriages ..	6,735	0'76	6,459	0'73	6,638	0'76	6,780	0'78	6,690	0'78
Mean Temperature }	47°·5		49°·2		50°·73		49°·53		49°·2	
3rd Quarter—										
Births	30,988	3'45	30,790	3'49	30,123	3'45	30,702	3'55	28,975	3'38
Deaths	15,919	1'79	16,465	1'87	18,050	2'07	18,099	2'09	17,072	1'99
Marriages ..	5,694	0'64	5,895	0'67	5,723	0'65	5,582	0'64	5,816	0'68
Mean Temperature }	54°·0		56°·0		57°·27		56°·03		55°·4	
4th Quarter—										
Births	31,225	3'51	30,538	3'46	30,180	3'45	30,961	3'58	29,270	3'41
Deaths	17,916	2'01	17,093	1'94	19,101	2'19	22,162	2'54	18,411	2'15
Marriages ..	7,384	0'83	7,546	0'86	7,191	0'82	7,158	0'83	7,606	0'88
Mean Temperature }	42°·8		43°·5		41°·7		39°·5		42°·7	
Year—										
Population.	3,560,715		3,527,811		3,495,214		3,462,916		3,430,923	
Births	126,824	3'56	126,749	3'59	123,693	3'54	123,795	3'57	119,738	3'49
Deaths	73,946	2'08	74,122	2'10	81,785	2'34	80,676	2'33	76,857	2'24
Marriages ..	25,790	0'72	26,563	0'75	25,921	0'74	26,247	0'76	26,730	0'78

II.—*Special Average Table:—Number of Births, Deaths, and Marriages in Scotland and in the Town and Country Districts during the Quarter ending 31st December, 1877, and their Proportion to the Population; also the Number of Illegitimate Births, and their Proportion to the Total Births.*

Registration Groups of Districts.	Population.		Total Births.			Illegitimate Births.		
	Census, 1871.	Estimated to Middle of 1877.	Number.	Per Cent.	Ratio. One in every	Number.	Per Cent.	Ratio. One in every
SCOTLAND	3,360,018	3,560,715	31,225	3·51	28·5	2,652	8·49	11·8
Principal towns ...	1,079,211	1,217,943	11,089	3·64	27·5	967	8·72	11·5
Large „ ...	318,740	357,094	3,871	4·34	23·0	237	6·12	16·3
Small „ ...	767,487	805,076	7,112	3·53	28·3	557	7·83	12·8
Mainland rural ...	1,062,576	1,051,489	8,241	3·13	31·9	829	10·06	9·9
Insular „ ...	132,004	129,113	912	2·76	36·2	62	6·80	14·7

Registration Groups of Districts.	Population.		Deaths.			Marriages.		
	Census, 1871.	Estimated to Middle of 1877.	Number.	Per Cent.	Ratio. One in every	Number.	Per Cent.	Ratio. One in every
SCOTLAND	3,360,018	3,560,715	17,916	2·01	49·8	7,384	0·83	120·5
Principal towns ...	1,079,211	1,217,943	6,987	2·29	43·7	2,826	0·93	107·5
Large „ ...	318,740	357,094	2,215	2·48	40·3	798	0·89	112·4
Small „ ...	767,487	805,076	3,731	1·85	54·1	1,567	0·78	128·2
Mainland rural ...	1,062,576	1,051,489	4,547	1·73	57·8	2,055	0·78	128·2
Insular „ ...	132,004	129,113	436	1·32	75·8	138	0·42	238·1

III.—*Bastardy Table:—Proportion of Illegitimate in every Hundred Births in the Divisions and Counties of Scotland, during the Quarter ending 31st December, 1877.*

Divisions.	Per Cent. of Illegitimate.	Counties.	Per Cent. of Illegitimate.	Counties.	Per Cent. of Illegitimate.	Counties.	Per Cent. of Illegitimate.
SCOTLAND	8·5						
Northern	8·5	Shetland	9·6	Forfar	11·1	Lanark	7·1
North-Western ..	6·3	Orkney	5·2	Perth	9·2	Linlithgow ..	6·5
North-Eastern ..	14·1	Caithness	12·4	Fife	7·1	Edinburgh ..	7·0
East Midland ..	9·7	Sutherland	3·2	Kinross	7·4	Haddington ..	7·0
West Midland ..	6·2	Ross and Cromarty }	3·6	Clackmannan ..	14·7	Berwick	7·3
South-Western ..	7·0	Inverness	8·4	Stirling	5·3	Peebles	9·4
South-Eastern ..	7·1	Nairn	6·2	Dumbarton ..	6·2	Selkirk	9·4
Southern	14·5	Elgin	13·8	Argyll	7·1	Roxburgh ..	10·7
		Banff	18·1	Bute	8·7	Dumfries	15·7
		Aberdeen	13·2	Renfrew	6·1	Kirkcudbright ..	15·7
		Kincardine	15·8	Ayr	7·3	Wigtown	16·0

IV.—*Divisional Table:—MARRIAGES, BIRTHS, and DEATHS Registered in the Quarter ended 31st December, 1877.*

1	2	3	4	5	6
DIVISIONS. (Scotland)	AREA in Statute Acres.	POPULATION, 1871. (Persons.)	Marriages.	Births.	Deaths.
		No.	No.	No.	No.
SCOTLAND Totals	19,639,377	3,360,018	7,384	31,225	17,916
I. Northern	2,261,622	127,191	195	839	430
II. North-Western	4,739,876	166,851	233	1,123	610
III. North-Eastern	2,429,594	393,199	902	3,307	1,617
IV. East Midland	2,790,492	559,676	1,215	4,801	2,748
V. West Midland	2,693,176	251,088	451	2,085	1,209
VI. South-Western	1,462,397	1,183,218	2,864	13,142	7,780
VII. South-Eastern	1,192,524	475,523	1,118	4,422	2,651
VIII. Southern	2,069,696	203,772	406	1,506	871

No. III.—GREAT BRITAIN AND IRELAND.

SUMMARY of MARRIAGES, in the Quarter ended 30th September, 1877; and BIRTHS and DEATHS, in the Quarter ended 31st December, 1877.

COUNTRIES.	[000's omitted.]		Marriages.	Per 1,000 of Popu- lation.	Births.	Per 1,000 of Popu- lation.	Deaths.	Per 1,000 of Popu- lation.
	Area in Statute Acres.	Popu- lation, 1871. (Persons.)						
		No.	No.	Ratio.	No.	Ratio.	No.	Ratio.
England and Wales	37,319,	22,712,	47,732	2·1	220,609	9·7	124,404	5·5
Scotland	19,639,	3,360,	5,694	1·7	31,225	9·3	17,916	5·3
Ireland	20,323,	5,412,	5,263	1·0	82,278	6·0	21,802	4·0
GREAT BRITAIN AND IRELAND }	77,281,	31,484,	58,689	1·9	284,112	9·0	164,212	5·2

Note.—The numbers against Ireland represent the marriages, births, and deaths that the local registrars have *succeeded* in recording; but how far the registration approximates to absolute completeness, does not at present appear to be known. It will be seen that the Irish ratios of marriages, births, and deaths are much under those of England and Scotland.—ED. S. J.

Trade of United Kingdom, 1877-78-75.—Distribution of Exports* from United Kingdom, according to the Declared Real Value of the Exports; and the Declared Real Value (Ex-duty) of Imports at Port of Entry, and therefore including Freight and Importer's Profit.

Merchandise (excluding Gold and Silver) Imported from, and Exported to, the following Foreign Countries, &c. [000's omitted.]	Whole Years.					
	1877.		1876.		1875.	
	Imports from	Exports to	Imports from	Exports to	Imports from	Exports to
1.—FOREIGN COUNTRIES:	£	£	£	£	£	£
Northern Europe; viz., Russia, Sweden, Norway, Denmark & Iceland, & Heligoland	36,510,	10,172,	32,430,	12,619,	33,805,	14,944,
Central Europe; viz., Germany, Holland, and Belgium	59,106,	84,515,	51,568,	37,710,	51,400,	42,198,
Western Europe; viz., France, Portugal (with Azores, Madeira, &c.), and Spain (with Gibraltar and Canaries)	60,829,	21,355,	58,200,	23,758,	60,800,	21,725,
Southern Europe; viz., Italy, Austrian Empire, Greece, Ionian Islands, and Malta	8,350,	8,946,	6,990,	9,237,	7,912,	9,301,
Levant; viz., Turkey, with Wallachia and Moldavia, Syria and Palestine, and Egypt	18,258,	8,083,	20,046,	9,259,	17,926,	9,885,
Northern Africa; viz., Tripoli, Tunis, Algeria and Morocco	1,874,	700,	1,517,	674,	1,626,	622,
Western Africa	1,525,	1,175,	1,478,	1,018,	1,740,	798,
Eastern Africa; with African Ports on Red Sea, Aden, Arabia, Persia, Bourbon, and Kooria Moorla Islands	543,	464,	416,	374,	496,	386,
Indian Seas, Siam, Sumatra, Java, Philippines; other Islands	3,755,	8,394,	3,095,	2,416,	3,118,	2,689,
South Sea Islands	82,	78,	123,	45,	118,	88,
China and Japan, including Hong Kong	16,048,	10,119,	17,016,	9,722,	15,202,	10,995,
United States of America	77,669,	16,813,	75,429,	16,804,	69,549,	21,874,
Mexico and Central America	2,167,	1,925,	1,597,	1,218,	2,020,	1,732,
Foreign West Indies, Hayti, &c.	2,099,	3,169,	3,527,	2,857,	4,417,	4,031,
South America (Northern, New Granada, Venezuela, and Ecuador)	722,	1,783,	967,	1,696,	1,235,	1,781,
" (Pacific), Peru, Bolivia, Chili, and Patagonia	8,321,	2,864,	9,625,	3,134,	9,557,	3,902,
" (Atlantic) Brazil, Uruguay, and Buenos Ayres	8,775,	9,134,	7,595,	8,455,	9,971,	9,967,
Whale Fisheries; Grnld., Davis' Straits, Southn. Whale Fishery, & Falkland Islands	177,	21,	171,	—	164,	20,
Total—Foreign Countries	306,810,	134,210,	291,790,	140,996,	291,056,	156,888,
II.—BRITISH POSSESSIONS:						
British India, Ceylon, and Singapore	38,396,	28,657,	35,812,	25,458,	37,778,	28,291,
Austral. Colo.—N. So. W., Vict., and Queensld.	14,682,	13,209,	14,342,	11,890,	13,409,	13,239,
" " So. Aus., W. Aus., Taam., and N. Zealand	7,031,	6,072,	7,623,	5,763,	7,130,	6,243,
British North America	12,010,	7,585,	10,946,	7,369,	10,156,	9,029,
" W. Indies with Btch. Guiana & Honduras	7,117,	3,008,	7,190,	3,064,	7,490,	3,111,
Cape and Natal	4,275,	4,114,	4,187,	4,366,	4,487,	4,909,
Brit. W. Co. of Af., Ascension and St. Helena	772,	888,	874,	741,	609,	789,
Mauritius	1,918,	494,	938,	342,	822,	354,
Channel Islands	938,	540,	676,	587,	693,	641,
Total—British Possessions	87,139,	64,521,	82,588,	59,580,	82,574,	66,606,
General Total	£393,949,	198,731,	374,378,	200,576,	373,630,	228,494,

* i.e., British and Irish produce and manufactures.

IMPORTS.—(United Kingdom.)—Whole Years, 1877-78-75-74-73.—Declared Real Value (*Ex-duty*), at Port of Entry (and therefore including Freight and Importer's Profit), of Articles of Foreign and Colonial Merchandise Imported into the United Kingdom.

(Whole Years.)	[000's omitted.]	1877.	1876.	1875.	1874.	1873.
FOREIGN ARTICLES IMPORTED.						
		£	£	£	£	£
RAW MATLS.—Textile, &c.	Cotton Wool	35,489,	40,347,	46,320,	50,937,	54,887,
	Wool (Sheep's) ..	26,310,	24,980,	22,889,	22,640,	20,699,
	Silk*	12,498,	16,250,	10,546,	15,718,	15,519,
	Flax	5,055,	3,537,	4,380,	5,545,	5,295,
	Hemp	4,973,	1,952,	2,246,	2,211,	2,319,
	Indigo	1,636,	2,130,	1,621,	2,153,	2,438,
		85,961,	89,196,	88,002,	99,199,	101,157,
" " Various.	Hides	6,495,	6,273,	7,005,	6,815,	6,678,
	Oils	4,200,	4,786,	5,368,	4,778,	5,556,
	Metals	11,569,	10,252,	12,685,	11,109,	10,991,
	Tallow	2,570,	2,874,	2,037,	2,318,	3,133,
	Timber.....	20,191,	19,025,	15,362,	21,831,	19,665,
	45,025,	43,210,	42,457,	46,851,	45,018,	
" Agricul.	Guano	1,667,	2,462,	1,292,	1,342,	2,112,
	Seeds	9,139,	8,970,	8,789,	7,470,	7,129,
		10,806,	11,432,	10,081,	8,812,	9,241,
TROPICAL, &c., PRODUCE.	Tea	12,482,	12,813,	14,167,	11,573,	11,589,
	Coffee	7,852,	6,413,	7,606,	7,103,	7,319,
	Sugar & Molasses	27,277,	20,620,	21,917,	16,083,	21,436,
	Tobacco	3,539,	3,946,	2,987,	3,875,	4,003,
	Rice	3,507,	2,927,	2,991,	3,622,	2,338,
	Fruits	4,334,	3,839,	3,789,	3,349,	3,051,
	Wines	7,156,	7,020,	6,821,	6,868,	8,304,
	Spirits	2,256,	3,963,	2,885,	2,612,	3,297,
		68,403,	61,541,	63,162,	55,085,	62,188,
FOOD	Grain and Meal.	63,210,	51,550,	52,714,	50,753,	51,521,
	Provisions	33,241,	32,837,	25,752,	25,868,	23,812,
		96,451,	84,387,	78,466,	76,621,	75,333,
Remainder of Enumerated Articles		47,795,	45,938,	52,973,	45,594,	42,144,
TOTAL ENUMERATED IMPORTS		354,441,	335,704,	335,141,	332,162,	335,081,
Add for UNENUMERATED IMPORTS (say)		39,500,	38,300,	38,800,	36,273,	35,300,
TOTAL IMPORTS		393,941,	374,004,	373,941,	368,435,	370,381,

* "Silk," inclusive of manufactured silk, "not made up."

EXPORTS.—(United Kingdom.)—Whole Years, 1877-76-75-74-73.—Declared Real Value, at Port of Shipment, of Articles of BRITISH and IRISH Produce and Manufactures Exported from United Kingdom.

(Whole Years.) BRITISH PRODUCE, &c., EXPORTED.	[000's omitted.]	1877.	1876.	1875.	1874.	1873.
		£	£	£	£	£
MANURES.—Textile. Cotton Manufactures..	56,954,	54,851,	58,565,	59,716,	61,447,	
" Yarn	12,209,	12,783,	13,170,	14,516,	15,876,	
Woolen Manufactures	17,335,	18,620,	21,649,	22,795,	25,279,	
" Yarn	3,609,	4,417,	5,102,	5,559,	5,404,	
Silk Manufactures.....	1,707,	1,769,	1,738,	2,100,	1,876,	
" Yarn	572,	1,073,	878,	1,030,	1,688,	
Linen Manufactures	5,830,	5,621,	7,271,	7,124,	7,295,	
" Yarn	1,291,	1,460,	1,855,	1,721,	1,976,	
	99,507,	100,594,	110,228,	114,561,	120,821,	
" Sewed. Apparel	2,833,	2,962,	3,185,	3,197,	3,434,	
Haberd. and Millnry.	3,803,	3,771,	4,922,	6,181,	6,598,	
	6,636,	6,733,	8,107,	9,328,	10,032,	
METALS, &c. Hardware	3,336,	3,481,	4,265,	4,413,	4,938,	
Machinery	6,683,	7,198,	9,099,	9,771,	9,994,	
Iron	20,095,	20,731,	25,781,	31,225,	37,780,	
Copper and Brass.....	3,503,	3,401,	3,730,	3,814,	3,821,	
Lead and Tin	1,363,	1,202,	1,300,	1,648,	1,548,	
Coals and Culm	7,829,	8,901,	9,646,	11,954,	13,206,	
	42,809,	44,914,	53,821,	62,825,	71,287,	
Ceramic Manufcts. Earthenware and Glass	2,614,	2,577,	2,812,	3,152,	3,408,	
Indigenous Mufrs. Beer and Ale.....	1,895,	1,922,	2,090,	2,451,	2,420,	
and Products. Butter	247,	210,	240,	256,	266,	
Cheese	72,	70,	88,	82,	81,	
Candles	196,	151,	177,	187,	221,	
Salt	463,	529,	676,	663,	789,	
Spirits	373,	312,	277,	152,	212,	
Soda	—	—	2,300,	2,602,	2,931,	
	3,246,	3,194,	5,848,	6,393,	6,920,	
Various Manufcts. Books, Printed	896,	877,	915,	899,	913,	
Furniture	—	—	—	—	—	
Leather Manufactures	1,995,	3,848,	382,	3,547,	3,417,	
Soap	365,	312,	311,	277,	241,	
Plate and Watches	218,	247,	304,	285,	278,	
Stationery	655,	659,	684,	688,	673,	
	4,129,	5,438,	2,596,	5,696,	5,522,	
Remainder of Enumerated Articles	22,509,	19,796,	22,882,	20,321,	19,433,	
Unenumerated Articles.....	17,281,	17,330,	17,200,	17,160,	17,650,	
TOTAL EXPORTS.....	198,731,	200,576,	223,494,	239,436,	255,073	

SHIPPING.—(United Kingdom.)—Account of Tonnage of Vessels Entered and Cleared with Cargoes, from and to Various Countries, during the Twelve Months ended December, 1877-76-75.

Countries from whence Entered and to which Cleared.	Total British and Foreign.					
	1877.		1876.		1875.	
	Entered.	Cleared.	Entered.	Cleared.	Entered.	Cleared.
FOREIGN COUNTRIES.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Russia { Northern ports	1,804,220	938,435	1,347,886	947,410	1,268,269	847,974
{ Southern „	156,737	56,542	304,843	197,537	432,482	165,318
Sweden	1,324,690	746,935	1,324,051	733,273	1,028,487	681,778
Norway	775,660	463,323	814,909	419,811	663,194	434,617
Denmark	202,402	658,951	215,169	659,497	199,687	630,654
Germany	1,705,672	2,317,399	1,448,435	2,427,213	1,483,464	2,369,927
Holland	1,206,035	1,322,876	1,130,599	1,301,758	1,083,359	1,106,300
Belgium	882,532	932,156	937,254	1,023,700	852,447	972,947
France	1,967,674	2,981,046	1,869,971	3,061,668	1,880,874	2,744,622
Spain	1,184,911	696,039	836,126	656,192	650,930	610,563
Portugal	219,158	314,078	195,262	336,861	266,612	323,316
Italy	336,877	869,110	288,482	947,649	314,391	895,909
Austrian territories	37,869	88,616	25,640	88,350	40,820	87,624
Greece	79,334	64,445	50,060	67,203	121,756	75,676
Turkey (including Walla- chia and Moldavia)}	338,543	221,353	524,107	325,041	308,436	303,283
Egypt	417,790	470,357	418,332	487,426	312,275	479,024
United States of America	4,070,538	2,029,537	4,013,481	2,146,493	3,264,668	1,996,751
Mexico, Foreign West Indies, and Central America	198,730	413,946	254,401	415,191	307,849	462,037
Brazil	230,793	474,667	194,651	423,680	247,406	468,724
Peru	215,438	85,543	288,892	102,279	244,955	113,272
Chili	52,156	186,439	60,475	206,372	65,943	289,763
China	150,222	28,887	136,843	23,347	136,815	32,675
Other countries	649,728	638,132	573,197	578,971	546,129	593,884
Total, Foreign Countries	18,207,709	16,998,812	17,253,066	17,576,922	15,721,248	16,686,638
BRITISH POSSESSIONS.						
North American Colonies	1,641,153	707,982	1,512,571	678,960	1,240,334	607,039
East Indies, including Ceylon, Singapore, and Mauritius	1,277,962	1,698,887	1,191,255	1,543,096	1,096,454	1,437,812
Australia and New Zealand	269,018	598,391	346,478	523,524	262,822	595,783
West Indies	173,338	160,589	214,684	162,201	252,459	167,021
Channel Islands	289,199	174,691	265,924	172,121	248,772	167,783
Other possessions	273,097	857,668	235,390	846,782	205,738	753,836
Total, British Possessions	3,923,767	4,198,208	3,766,302	3,926,684	3,306,579	3,729,274
TOTAL FOREIGN COUNTRIES AND BRITISH POSSESSIONS.						
Twelve months { 1877.....	22,131,476	21,197,020	—	—	—	—
{ '76.....	—	—	21,019,368	21,503,606	—	—
{ December, { '75.....	—	—	—	—	19,027,827	20,415,912

GOLD AND SILVER BULLION AND SPECIE.—IMPORTED AND EXPORTED.—(United Kingdom.)—Declared Real Value for the Whole Years, 1877-78-79.

[000's omitted.]

(Whole Years.)	1877.		1876.		1875.	
	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.
Imported from—	£	£	£	£	£	£
Australia	6,655,	38,	4,957,	15,	6,641,	33,
So. Amca., including } Mexico and W. } Indies	1,172,	3,394,	2,442,	3,145,	1,644,	3,432,
United States	2,062,	2,617,	4,372,	2,637,	8,258,	3,181,
	9,889,	6,049,	11,771,	5,797,	16,543,	6,646,
France	873,	1,521,	1,427,	1,341,	2,023,	1,392,
Germany, Holl. & } Belg.	1,036,	13,855,	2,682,	5,538,	739,	1,226,
Prtgl., Spain, and } Gbrltr.	501,	46,	545,	45,	120,	48,
Mta. and Egypt	317,	107,	398,	25,	654,	26,
China, including } Hong Kong	187,	1,	809,	16,	342,	114,
West Coast of Africa	121,	10,	146,	22,	117,	24,
All other Countries ...	2,528,	122,	5,699,	797,	2,603,	649,
Totals Imported	15,452,	21,711,	23,477,	13,581,	23,141,	10,124,
Exported to—						
France	6,147,	768,	4,189,	1,833,	5,252,	2,450,
Germany, Holl. & } Belg.	8,404,	166,	2,684,	592,	8,614,	465,
Prtgl., Spain, and } Gbrltr.	744,	1,566,	2,367,	203,	1,223,	1,695,
	15,295,	2,500,	9,240,	2,628,	15,089,	4,610,
Ind. and China	610,	16,361,*	217,	9,492,	78,	4,094,
United States	1,168,	298,	3,524,	378,	577,	89,
South Africa	485,	7,	230,	5,	—	15,
So. Amca., including } Mexico and W. } Indies	683,	59,	1,199,	178,	1,961,	57,
All other Countries ...	2,120,	212,	2,105,	267,	943,	114,
Totals Exported	20,361,	19,437,	16,515,	12,948,	18,648,	8,979,
Excess of imports	—	2,274,	6,962,	633,	4,493,	1,255,
„ exports	4,909,	—	—	—	—	—

* This entry is now shown direct, instead of to Egypt as formerly.

REVENUE.—(UNITED KINGDOM.)—31ST DECEMBER, 1877-76-75-74.
Net Produce in QUARTERS and YEARS ended 31st DEC., 1877-76-75-74.
 [000's omitted.]

QUARTERS, ended 31st Dec.	1877.	1876.	1877.		Corresponding Quarters.	
			Less.	More.	1875.	1874.
	£	£	£	£	£	£
Customs	5,386,	5,433,	47,	—	5,506,	5,360,
Excise	6,855,	7,053,	198,	—	7,133,	7,077,
Stamps	2,735,	2,692,	—	43,	2,795,	2,603,
Taxes	46,	39,	—	7,	39,	48,
Post Office	1,577,	1,552,	—	25,	1,511,	1,470,
Telegraph Service	320,	330,	10,	—	330,	300,
	16,919,	17,099,	255,	75,	17,314,	16,858,
Property Tax	342,	281,	—	61,	211,	251,
	17,261,	17,380,	255,	136,	17,525,	17,109,
Crown Lands	141,	141,	—	—	136,	136,
Interest on Advances	337,	276,	—	61,	—	—
Miscellaneous	644,	880,	236,*	—	1,102,	1,059,
<i>Totals</i>	18,383,	18,677,	491,	197,	18,763,	18,304,
			NET DECR. £394,			

YEARS, ended 31st Dec.	1877.	1876.	1877.		Corresponding Years.	
			Less.	More.	1875.	1874.
	£	£	£	£	£	£
Customs	19,762,	20,075,	313,	—	19,740,	19,393,
Excise	27,368,	27,853,	485,	—	27,857,	27,868,
Stamps	10,968,	10,946,	—	22,	10,878,	10,458,
Taxes	2,636,	2,488,	—	148,	2,456,	2,438,
Post Office	6,133,	5,970,	—	163,	5,933,	5,750,
Telegraph Service	1,320,	1,295,	—	25,	1,170,	1,259,
	68,187,	68,627,	798,	358,	68,034,	66,666,
Property Tax	5,736,	4,095,	—	1,641,	3,921,	5,466,
	73,923,	72,722,	798,	1,999,	71,955,	72,132,
Crown Lands	410,	405,	—	5,	395,	381,
Interest on Advances	954,	797,	—	157,	—	—
Miscellaneous	3,393,	3,555,	162,*	—	4,025,	3,992,
<i>Totals</i>	78,680,	77,479,	960,	2,161,	76,375,	76,505,
			NET INCR. £1,201,			

* The decrease on "Miscellaneous" is due to the postponement of certain Indian repayments.

REVENUE.—UNITED KINGDOM.—QUARTER ENDED 31ST DEC., 1877:—

An Account showing the REVENUE and other RECEIPTS in the QUARTER ended 31st December, 1877; the ISSUES out of the same, and the Charges on the Consolidated Fund at that Date, and the Surplus or Deficiency of the Balance in the Exchequer on the 31st of December, 1877, in respect of such Charges.

Received:—

	£
Income received, as shown in Account I	18,383,194
Amount raised on account of Loans for Local Purposes by Treasury } Bills	2,846,000
Amount received in Repayment of Advances for Public Works, &c. ...	485,988
„ for Greenwich Hospital and School	28,477
Total	£21,743,609

Excess of the Sums charged on the Consolidated Fund on the 31st of December, 1877, payable in March quarter, 1878, above the Balance in the Exchequer at that date, viz:—

Excess of Charge in Great Britain	£6,470,786
Surplus over Charge in Ireland	189,148

Net deficiency	£6,281,648
£28,025,252	

Paid:—

	£
Net deficiency of the balance in the Exchequer to meet the charge } on the 30th of September, 1877, as per last account.....	3,841,729
Amount issued to repay Advances in aid of Ways and Means	1,000,000
„ applied out of the Income to Supply Services	11,659,587
„ advanced for Greenwich Hospital and School.....	28,477
Charge of the Consolidated Fund on the 31st of December, 1877, viz:—	
Permanent Charge of Debt—	
Interest of the Permanent Debt	£6,077,925
Terminable Annuities	2,252,581
Interest of Exchequer Bills, &c.	87,100
	8,367,556
Interest on Local Loans	60,198
Other Consolidated Fund Charges:—	
The Civil List	101,556
Other Charges	820,481
	422,037
Principal of Exchequer Bills.....	89,500
„ Treasury „	715,000
Advances for Public Works, &c.	1,841,218
	11,495,509
Total	£28,025,252

* Charge on 31st of December, 1877 (as above)	£11,495,509
Paid out of Growing Produce in December quarter, 1877	2,923,027
Portion of the Charge payable in March quarter, 1878	8,572,482
To meet which there was in the Exchequer on the 31st of } December, 1877	2,290,839
Net deficiency as above	6,281,648

**BRITISH CORN.—Gazette Average Prices (ENGLAND AND WALES),
Fourth Quarter of 1877.**

[This Table is communicated by the Statistical and Corn Department, Board of Trade.]

Weeks ended on Saturday.	Weekly Average. (Per Impl. Quarter.)					
	Wheat.		Barley.		Oats.	
1877.	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
October 6	55	11	44	2	24	6
„ 13	52	2	43	6	23	9
„ 20	52	9	42	6	23	5
„ 27	53	7	42	4	23	8
<i>Average for October</i>	53	7	43	1	23	10
November 3	53	8	42	4	24	2
„ 10	52	5	43	3	24	6
„ 17	51	8	43	8	24	9
„ 24	51	5	44	—	24	3
<i>Average for November</i>	52	3	43	3	24	5
December 1	51	7	44	2	24	11
„ 8	51	4	44	1	23	10
„ 15	51	7	44	—	24	—
„ 22	51	4	43	8	23	11
„ 29	51	9	43	—	23	4
<i>Average for December</i>	51	6	43	8	24	—
<i>Average for the quarter</i>	52	4	43	4	24	—
„ <i>year</i>	56	9	39	8	25	11

BANK OF ENGLAND.—WEEKLY RETURN.

Pursuant to the Act 7th and 8th Victoria, c. 32 (1844), for Wednesday in each Week, during the FOURTH QUARTER (October—December) of 1877.

[0,000's omitted.]

ISSUE DEPARTMENT.					COLLATERAL COLUMNS.	
1	2	3	4	5	6	7
Liabilities.	DATES. (Wednesdays.)	Assets.			Notes in Hands of Public. (Col. 1 minus col. 16.)	Minimum Rates of Discount at Bank of England.
Notes Issued.		Government Debt.	Other Securities.	Gold Coin and Bullion.		
£		£	£	£	£	
Mins.	1877.	Mins.	Mins.	Mins.	Mins.	
37,74	Oct. 3 ...	11,01	3,98	22,74	28,75	1877. Per cent.
37,11	" 10 ...	11,01	3,98	22,11	28,35	4 Oct. 4
36,92	" 17 ...	11,01	3,98	21,92	28,30	11 " 5
36,99	" 24 ...	11,01	3,98	21,99	27,69	
36,99	" 31 ...	11,01	3,98	21,99	28,11	
36,46	Nov. 7 ...	11,01	3,98	21,46	27,64	
36,43	" 14 ...	11,01	3,98	21,43	27,29	
36,55	" 21 ...	11,01	3,98	21,55	26,91	
37,41	" 28 ...	11,01	3,98	22,41	26,76	29 Nov. 4
37,84	Dec. 5 ...	11,01	3,98	22,84	27,00	
38,09	" 12 ...	11,01	3,98	23,09	26,44	
38,18	" 19 ...	11,01	3,98	23,18	26,41	
38,23	" 26 ...	11,01	3,98	23,23	26,80	

BANKING DEPARTMENT.

8	9	10	11	12	13	14	15	16	17	18
Liabilities.					DATES. (Wednesds.)	Assets.				Totals of Liabili- ties and Assets.
Capital and Rest.		Deposits.		Seven Day and other Bills.		Securities.		Reserve.		
Capital.	Rest.	Public.	Private.			Government.	Other.	Notes.	Gold and Silver Coin.	
£	£	£	£	£	1877.	£	£	£	£	£
Mins.	Mins.	Mins.	Mins.	Mins.	Oct. 3	Mins.	Mins.	Mins.	Mins.	Mins.
14,55	3,70	5,03	20,80	,86	Oct. 3	15,09	19,63	8,99	,73	44,44
14,55	3,08	5,04	21,18	,86	" 10	15,72	19,06	8,76	,67	44,21
14,55	3,09	5,15	20,63	,85	" 17	15,72	18,57	8,62	,86	43,77
14,55	3,10	3,94	21,80	,83	" 24	15,14	18,58	9,30	,70	43,72
14,55	3,08	4,08	21,40	,82	" 31	15,12	18,63	8,88	,80	43,43
14,55	3,09	3,72	20,60	,43	Nov. 7	14,50	18,26	8,82	,81	42,39
14,55	3,10	3,42	20,53	,83	" 14	14,10	17,83	9,14	,86	41,93
14,55	3,11	3,66	19,99	,83	" 21	13,58	17,41	9,64	1,01	41,64
14,55	3,07	3,86	20,38	,31	" 28	13,58	17,05	10,65	,89	42,17
14,55	3,06	4,66	19,63	,86	Dec. 5	13,18	17,47	10,84	,77	42,26
14,55	3,06	5,38	20,38	,30	" 12	13,29	17,90	11,65	,83	43,67
14,55	3,07	5,70	20,36	,30	" 19	13,34	17,97	11,77	,90	43,98
14,55	3,07	5,94	20,18	,31	" 26	13,38	18,44	11,43	,80	44,06

LONDON CLEARING; CIRCULATION, PRIVATE AND PROVINCIAL.

The London Clearing, and the Average Amount of Promissory Notes in Circulation in ENGLAND and WALES on Saturday in each Week during the FOURTH QUARTER (October—December) of 1877; and in SCOTLAND and IRELAND, at the Three Dates, as under.

[0,000's omitted.]

ENGLAND AND WALES.					SCOTLAND.				IRELAND.		
DATES. Saturday.	London: Cleared in each Week ended Wednesday.*	Private Banks. (Fixed Issues, 8,73).	Joint Stock Banks. (Fixed Issues, 2,69).	TOTAL. (Fixed Issues, 6,31).	Weeks ended	£5 and upwards	Under £5.	TOTAL. (Fixed Issues, 2,75).	£5 and upwards	Under £5.	TOTAL. (Fixed Issues, 6,35).
1877.	£	£	£	£	1877.	£	£	£	£	£	£
Oct. 6	109.40	2.48	2.28	4.76							
" 13	93.18	2.54	2.30	4.84							
" 20	115.36	2.49	2.22	4.71							
" 27	84.48	2.52	2.27	4.79	Oct. 28	2.02	4.06	6.07	4.51	3.45	7.96
Nov. 3	103.60	2.47	2.23	4.70							
" 10	94.89	2.45	2.25	4.70							
" 17	102.38	2.42	2.22	4.64							
" 24	97.34	2.38	2.18	4.56	Nov. 24	2.38	4.37	6.75	4.45	3.46	7.91
Dec. 1	81.39	2.36	2.17	4.53							
" 8	109.93	2.33	2.14	4.47							
" 15	100.07	2.30	2.11	4.41							
" 22	94.22	2.29	2.12	4.41	Dec. 22	2.20	4.20	6.40	4.16	3.33	7.49
" 29	68.37	2.29	2.11	4.40							

* The Wednesdays preceding the Saturdays.

FOREIGN EXCHANGES.—Quotations as under, LONDON on Paris, Hamburg and Calcutta;—and New York, Calcutta, Hong Kong and Sydney, on LONDON.

1	2	3	4	5 6		7	8	9
DATES.	London on Paris.	London on Hamburg.	New York.	Calcutta.		Hong Kong.	Sydney.	Standard Silver in bars in London.
				Indian Council Demand Bills and Telegraphic Transfers.	Calcutta on London Bank Bills.			
	3 m. d.	3 m. d.	60 d. s.		6 m. s.	6 m. d.	30 d. s.	pr. oz.
1877.			Per cent.	d.	d.	d.	Per cent.	d.
Oct. 5	25.35	20.74	4.82	India	21 1/4*	48	1 1/2 pm.	55 1/2
" 19	25.42 1/2	20.75	4.81	Council	21 1/4	47 1/2	—	54 1/2
Nov. 2	25.37 1/2	20.72	4.81	Drawings	21 1/4	47 1/2	—	55
" 16	"	20.73	4.80 1/2	sus- pended	21 1/4	47	—	54 1/2
Dec. 7	25.35	20.68	4.81 1/2	20 3/4	21 1/4	47 1/2	—	54 1/2
" 21	25.37 1/2	20.67	4.83	20 1/4	21 1/4	47 1/2	—	54

* These rates are for the nearest approximate dates.

JOURNAL OF THE STATISTICAL SOCIETY,

JUNE, 1878.

On the Progress of the Foreign Trade of the United Kingdom since 1856, with ESPECIAL REFERENCE to the EFFECTS PRODUCED UPON IT by the Protectionist Tariffs of other COUNTRIES.

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[Read before the Statistical Society, 21st May, 1878.]

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* I have endeavoured in the preparation of this Paper to set, as far as I could, an example of completeness, conciseness, and clearness in all the tabular matter, by adhering to the six following rules, which I hold to be essential in all statistical writings: (1.) That the tables should be simple and concise in form. (2.) That each table should be confined to some special point or points of the subject. (3.) That all superfluous figures and signs should be got rid of or avoided. (4.) That the title-heads of columns and notes to each table should render it self-interpreting. (5.) That the text of the paper should admit only summary tables, so that tables of detail may be referred to the appendix. (6.) That as far as possible varieties of stronger type be used for the more important lines of figures, and for leading words and phrases. It is the very general, in many cases the flagrant and slovenly neglect of these various rules of scientific precision, which renders useless and oppressive so large a part of the statistical literature of this and other countries; and until statisticians establish for themselves a reputation for lucid and logical arrangement of their materials, this branch of knowledge will exercise a very small part of the influence which fairly belongs to it.

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I.—*The Nature and Benefits of Foreign Trade.*

THERE can be no more suitable commencement of a Paper intended to investigate in some detail the progress of the trade of the United Kingdom since 1856, with especial reference to the effects produced upon it by the Protectionist Tariffs of other countries, than the following passages from the chapter on international trade in Mr. John S. Mill's great work on the "Principles of Political Economy." He says:—

"The benefit of international exchange, or in other words, "foreign commerce, consists in this:—Setting aside its enabling "countries to obtain commodities which they could not themselves "produce at all, its advantages consist in a more efficient employ-

"ment of the productive forces of the world. If two countries which trade together attempted as far as was physically possible to procure for themselves what they now import from one another, the labour and capital of the two countries would not be so productive: the two together would not obtain for their industry so great a quantity of commodities as when each employs itself in producing both for itself and for the other, the things in which its labour is relatively most efficient. The addition thus made to the produce of the two countries, constitutes the advantage of the trade.

"It is possible that one of the two countries may be altogether inferior to the other in productive capacities, and that its labour and capital would be employed to *greatest* advantage by being *removed* bodily to the other. The labour and capital which have been sunk in rendering Holland habitable, would have produced a much greater return if transported to America or Ireland. The produce of the whole world would be greater, or the labour less, than it is, if everything were produced where there is the greatest absolute facility for its production. But nations do not, at least in modern times, emigrate *en masse*; and while the labour and capital of a country remain in the country, they are *most beneficially* employed in producing for foreign markets, as well as for its own, the things in which it lies under the *least* disadvantage, if there be none in which it possesses an advantage."

Mr. Mill then proceeds to contrast the views just stated with other theories of the nature and benefit of foreign trade which two or three generations ago did largely prevail—which prevailed to some extent when Mr. Mill wrote in 1847 and even now, at the distance of thirty years, are certainly not extinct.

"According," he says, "to the doctrine now stated, the only direct advantage of foreign commerce consists in the *Imports*. A country obtains things which it either (1) could not have produced at all; or (2) which it must have produced at a greater expense of capital and labour than the cost of the things which it exports to pay for them. It thus obtains (3) a more ample supply of the commodities it wants for the same labour and capital; or (4) the same supply for less labour and capital: leaving the surplus disposable to procure other things.

"The vulgar theory disregards this benefit, and deems the advantage of commerce to consist in the *Exports*: as if not what a country obtains, but what it parts with by its foreign trade was supposed to constitute the gain to it. An extended market for its produce, an abundant consumption for its goods, a vent for its surplus, are the phrases by which it has been customary to designate the uses and recommendations of commerce with foreign countries. This notion is intelligible, when we consider that the

“ authors and leaders of opinion in mercantile questions have always
 “ hitherto been the *Selling* class. It is in truth a surviving relic of
 “ the mercantile theory, according to which money being the only
 “ wealth, selling, or in other words, exchanging goods for money, was
 “ (to countries without monies of their own), the only way of
 “ growing rich ; and *importation* of goods, that is to say, parting
 “ with money, was so much subtracted from the benefit. . . .

“ There is much misconception in the common notion of what
 “ Commerce does for a country. When commerce is spoken of as a
 “ source of national wealth, the imagination fixes itself upon the
 “ large fortunes acquired by merchants rather than upon the
 “ *saving of price to Consumers*. But the gains of merchants when
 “ they enjoy no exclusive privilege are no greater than the profits
 “ obtained by the employment of capital in the country itself
 “ Commerce is virtually a mode of cheapening production ; and
 “ in all such cases the consumer is the person ultimately benefited ;
 “ the dealer, in the end, is sure to get his profit, whether the buyer
 “ obtains much or little for his money. Besides these direct
 “ advantages arising from foreign trade, the indirect benefits are
 “ of a high order. One is the tendency of every extension of the
 “ market to improve the processes of Production. A country which
 “ produces for a larger market than its own, can introduce a more
 “ extended division of labour, can make greater use of machinery,
 “ and is more likely to make inventions and improvements in the
 “ processes of production. Whatever causes a greater quantity of
 “ anything to be produced in the same place, tends to the general
 “ increase of the productive power of the world.”—(Principles,
 b. iii, c. xvii.)

Mr. Mill carries on the investigation in his fourth book, arriving at the conclusion (b. iv, c. ii) that the extension which a country A may be able to effect in its trade with foreign countries, must be in exact proportion to such diminished cost of production in A, arising from command of capital and increasing efficiency of processes of production (labour being the chief), as may obtain for or continue to A the control of foreign markets ; or to use Mr. Mill's own words, “ whatever diminishes in A the cost of its “ own productions, when of an exportable character, enables it to “ obtain its imports at less real cost.”

We have now before us the philosophy of the case we have undertaken to investigate in its manifestations of Fact. In substance the philosophy amounts to three propositions, viz., (1) the benefit of foreign trade consists in the largest degree in the *Imports* ;—(2) in procuring for the Consumers of a country in the largest quantities and at the lowest price, commodities which of themselves they could not produce at all, or only at extravagant cost ;—(3) that the

foreign trade of a country can only expand from year to year when the Cost of Production within that country, by reason of more efficient labour, more abundant capital, and more successful inventions, maintains and procures for its Exports superiority in old and new foreign markets.

The questions of Fact we have to determine are threefold, viz. :—

(1) Whether during the last thirty years the foreign trade of the United Kingdom has exhibited progressive steady enlargement or contraction ;

(2) In what directions is that enlargement or contraction most marked ; and

(3) Whether the tariffs of Protectionist countries intentionally hostile to the United Kingdom, have fulfilled the purpose of their framers by sensibly and continuously reducing their Imports from this country, and sensibly and continuously increasing their Exports to it.

II.—*The Free Trade Policy of the United Kingdom, as settled in 1846 :—Statements of Sir Robert Peel.*

But the platform on which our investigation is to be carried on must be secured not only in its philosophical but also in its practical foundations. We must see exactly not only what results were predicated by general reason, but further, what results were *promised* by the statesmen who from 1842 to 1853 were the leaders in those great parliamentary debates and measures which committed England in all its commercial legislation to the Free Trade canon.

I cannot place this part of the case in a clearer light than by selecting certain passages from the two great speeches of Sir Robert Peel, the first delivered by him as Prime Minister on the 27th January, 1846, in introducing the free trade budget, which brought to a close his large fiscal reforms of the preceding five years ; and the second delivered by him when out of office on the 6th July, 1849, in reply to Mr. Disraeli's motion for a committee on the state of the nation, in order to procure in that committee an abrogation of our free trade policy.

In the speech of 27th January, 1846, Sir Robert Peel answered as follows the argument that danger would arise to British trade by the absence of Reciprocity on the part of other countries :—

" I fairly avow to you that in making this great reduction upon the import of articles, the produce and manufacture of foreign countries, I have no guarantee to give you that other countries will follow our example, and I give you the full advantage of that argument. *Wearied with our long and unavailing efforts to enter into satisfactory commercial treaties with other nations, we have resolved at length to consult our own interests and not to punish those other countries for the wrong they do us, in continuing their high duties upon the importation of our products and manufactures, by continuing high duties ourselves, encouraging unlawful trade. We have had no communication with any foreign Government*

upon the subject of these reductions. We cannot promise that France will immediately make a corresponding reduction in her tariff. I cannot promise that Russia will prove her gratitude to us for our reduction of duty on her tallow by any diminution of her duties. You may therefore say, in opposition to the present plan, What is this superfluous liberality, that you are going to do away with all these duties, and yet you expect nothing in return?

"I may, perhaps, be told, that many foreign countries, since the former relaxation of duties on our part—and that would be perfectly consistent with the fact—foreign countries which have benefited by our relaxations, have not followed our example; nay, have not only not followed our example, but have actually applied to the importation of British goods higher rates of duties than formerly. I quite admit it. I give you all the benefit of that argument, I rely upon that fact as conclusive proof of the policy of the course we are pursuing. It is a fact that other countries have not followed our example, and have levied higher duties in some cases upon our goods. *But what has been the result upon the amount of your exports?* You have defied the regulations of these countries. Your export trade is greatly increased. Now, why is that so? Partly because of your acting without wishing to avail yourselves of their assistance; partly, because of the smuggler, not engaged by you, in so many continental countries, whom the strict regulations and the triple duties, which are to prevent any ingress of foreign goods, has raised up; and partly, perhaps, because these very precautions against the ingress of your commodities are a burden, and the taxation increasing the cost of production disqualifies the foreigner from competing with you.

"But your exports—whatever be the tariffs of other countries, or however apparent the ingratitude with which they have treated you—your export trade has been constantly increasing. By the remission of your duties upon the raw material—by inciting your skill and industry—by competition with foreign goods, you have defied your competitors in foreign markets, and you have been able to exclude them. Notwithstanding their hostile tariffs, the declared value of British exports has increased above ten millions during the period which has elapsed since the relaxation of the duties on your part. I say, therefore, to you, that these hostile tariffs, so far from being an objection to continuing your policy, are an argument in its favour.

"But, depend upon it, your example will ultimately prevail. When your example could be quoted in favour of restriction, it was quoted largely; when your example can be quoted in favour of relaxation, as conducive to your interests, it may perhaps excite at first, in foreign Governments, or foreign boards of trade, but little interest or feeling; but the sense of the people—of the great body of consumers—will prevail; and, in spite of the desire of Governments and boards of trade to raise revenue by restrictive duties, reason and common sense will induce relaxation of high duties. That is my firm belief; I see symptoms of it already."

It is curious, at the distance of more than thirty years, and with the exports swollen to nearly four times their amount in 1844, to trace the details of the increase of Ten millions upon which Sir Robert Peel laid such stress, as an argument of fact almost conclusive in his favour. Sir Robert gave these details as follows:—

"Now as to the tariff: as I said before, during the last four or five years we have been acting on the admitted principle of removing prohibitions, reducing duties, or abating, and in some cases destroying, protection to native industry. That has been the principle, whether right or wrong, on which we have acted—the removal of protection to native industry. Now what has been the result? I will give you the total amount of exports since the year 1839. The total value of British produce and manufactures exported from the United Kingdom was, in 1839, 53 million pounds; in 1840, 51 million pounds; in 1841, 51 million pounds; in 1842, 47 million pounds; in 1843, 52 million pounds; in 1844, 58 million pounds; that

is, the rise from the year when the great invasion upon the protection of domestic industry was made by parliament was from $47\frac{1}{2}$ millions in 1842, to $58\frac{1}{2}$ millions in 1844. But it may be said the China trade made all the difference. Now, let us deduct the whole of that trade. In 1842, our exports to all the countries, except China, amounted to $46\frac{1}{2}$ millions; and in 1844 they increased by 10 million pounds, amounting to 56 million pounds. For the last year we can only have the account for eleven months preceding December (1845).

"In 1843, the exports of all our principal articles of manufacture to all parts of the world, including China, amounted to 41 millions; in 1844 to 47 millions and during the first eleven months of 1845 to $47\frac{1}{2}$ millions. Such is the state of our foreign exports under this system of continued removal of protection."

III.—*Sir Robert Peel's Important Speech of 6th July, 1849.*

But it is in the great speech of July, 1849, in reply to the formal and long prepared attack of Mr. Disraeli and the large party who followed him as their Protectionist champion, that Sir Robert Peel set forth most exhaustively the facts and reasons which justified the free trade policy for which he was responsible. And in these days of ours when protection still reigns supreme in many of the largest countries of Europe, is a formidable power in the United States, is the chosen creed of some of our Australian colonies, and is about to be proposed in Canada by one of the two political bodies there, I do not hesitate to quote somewhat liberally from this great speech.

Sir Robert Peel thus meets clearly and boldly the general allegations of the protectionist leader.

"In bringing forward the present motion, the honourable gentleman the member for Buckinghamshire (Mr. Disraeli) was equally explicit. He observed, speaking of our recent legislation, 'That we have established a new commercial system, which mistakes the principles upon which a profitable exchange can take place between nations; that we can only encounter the hostile tariffs of foreign countries by countervailing duties; that such a system occasions not scarcity and dearth, but cheapness and abundance. Hitherto,' he said, 'in expressing the principles upon which the theory of reciprocity of commerce depends, I have laboured under the disadvantage of appealing only to abstract reasoning; now, however, we have practical results before us in the sufferings of our people, and in the decline of our wealth.'

"Now, in opposition to these doctrines, I boldly maintain that the principle of protection to domestic industry, meaning thereby legislative encouragement for the purpose of protection, duties on imports imposed for that purpose, and not for revenue, is a vicious principle. I contest the honourable gentleman's assumption that you cannot fight hostile tariffs by free imports. I so totally dissent from that assumption, that *I maintain that the best way to compete with hostile tariffs is to encourage free imports.* So far from thinking the principle of protection a salutary principle, I maintain that the more widely you extend it, the greater the injury you inflict on the national wealth, and the more you cripple the national industry.

"I found my opinion on these grounds. The capital of the country is the fund from which alone the industry of the country can be maintained. The industry of the country will be promoted in proportion as the capital employed in its maintenance shall be increased. The augmentation of capital must depend upon the saving from annual revenue. If you give for certain articles produced at home a greater price than that for which you can purchase those articles from other countries, there is a proportionate diminution of the saving from annual

revenue. If you attempt to redress the injustice which would be done by selecting one particular interest for special protection, if you aver that your object is to extend equal protection to all branches of domestic industry, then I reply, that the more extensive that system of protection, the greater will be the aggregate loss of annual revenue, the greater will be the check to the augmentation of capital; that is to say, of the means by which labour is to be maintained. So far from encouraging domestic industry, you are, in the first place, by legislative interference, diverting capital from its natural and most profitable application; and you are, in the second place, by giving more for every article than it is worth, exhausting the source from which alone capital can be maintained and augmented."

Sir Robert Peel pursues this part of his argument with great force as follows:—

"The principles which should govern the commercial intercourse of nations, do not differ from those which regulate the dealings of private individuals. It is the same law which determines the planetary movements and the fall of the slightest particle of matter to the earth. It is the same law which determines the accumulation of wealth by the private trader and the powerful kingdom. We only obscure and mystify the truth by overlooking the principle which governs the dealings of every man of common sense.

"Adam Smith illustrates the great doctrines of political economy by a reference to the simplest transactions. He says, 'It is the maxim of every prudent master of a family never to attempt to make at home what it will cost him more to make than to buy. The tailor does not make his own shoes, but buys them off the shoemaker. The shoemaker does not make his own clothes, but employs a tailor.'

"He says, moreover, that, 'What is prudence in the conduct of every private family, can scarce be folly in that of a great kingdom.'

"Now, let us consider the case of two artisans or dealers, resident in the same town. The shoemaker and the tailor will answer the purpose as well as any other. The one wants clothes, the other shoes; they think it right to encourage the domestic industry of their own town, to deal with each other and not with strangers. The shoemaker gives ten shillings to a tailor for a certain quantity of clothes, which he could get for seven shillings if he bought them in a neighbouring town. But by way of compensation the tailor gives him his custom, and pays ten shillings for shoes which he could also buy from a distant shoemaker for seven. Now, is there any encouragement in this to domestic industry? Is there not a loss of six shillings to the town in which they live as the result of the dealing between those tradesmen? What are shillings in this case? They are the mere representatives of labour. Let a shilling represent the labour of an hour. Is it not clear that in each case ten hours of labour have been devoted to produce that for which seven would have sufficed? Have not six hours of labour been unprofitably applied? Could not each party have procured that for which he gave the labour of ten hours by the labour of seven, and thus have had three hours at his disposal, with which to procure something else?

"Now let us try whether the arguments in favour of protection will justify this apparently unprofitable waste of time and labour: It may be alleged, that in the town from which the low-priced articles could be procured, the rent of houses is much lower, or the cost of food much less, and therefore, the residents in that town can afford to supply their goods at a cheaper rate. Is this any reason for not dealing with them? Is it any sort of compensation to those who are burthened with a high rent for their houses, or who pay too much for their food, that they should pay ten shillings for their clothes, or ten shillings for their shoes, when they could buy them elsewhere for seven? It may be that the town which produces the cheap articles requires nothing, or will take in return nothing, which the less favoured town produces. Some will consider that a decisive reason for withholding custom from strangers; they will say, 'All our

purchases must in that case be made with ready money, all the gold and silver coin will be sent out of the town, and nothing left wherewith to pay the wages of labour, and conduct the ordinary dealings of life.*

"Do not believe one word of this. Do not believe in either in the case of towns, in the same country, or of different countries in the great community of nations. Each town and each country will command the amount of currency which it requires for its own purposes, undisturbed in the slightest degree by consulting its manifest interest, namely, by purchasing that which it wants in the cheapest market."

The speaker then fortifies himself by the following reference to the famous London Merchants' Petition of 1820, the author of which was Thomas Tooke, one of the founders and long a Vice-President of this Society:—*

"Yes, by purchasing that which it wants in the cheapest market. You consider this a very low and unworthy principle; that it is a doctrine of the Manchester school; that it is a novel doctrine of some speculative political philosophers; and that it may be safely rejected. But this doctrine of purchasing in the cheapest market is not a doctrine of speculative philosophers only. It is not a doctrine introduced by modern economists. It is, no doubt, a doctrine sanctioned expressly and directly by the authority of Adam Smith. It is the doctrine of Say and Hume. It is opposed to a doctrine which was fashioned some eighty or ninety years since, of which such writers as Montesquieu and Voltaire were the patrons; but Smith and Say and Hume, demonstrated the true principles which ought to regulate the commercial policy of a nation. There are others, however, besides writers on political economy who have adopted those doctrines. When this country was suffering from great depression of trade in the year 1820, certain practical men, merchants and bankers of London, presented to this House a petition under the sanction of the honoured name of Alexander Baring. Those merchants and bankers propounded this doctrine, 'That the maxim of buying in the cheapest market, and selling in the dearest, which regulates every merchant in his individual dealings, is strictly applicable as the best rule for the trade of the whole nation.'

"In that memorable petition it was observed:—'That although as a matter of mere diplomacy, it may sometimes answer to hold out the removal of particular prohibitions or high duties, as depending upon corresponding concessions by other States in our favour, it does not follow that we should maintain our restrictions in cases where the desired concessions on their part cannot be obtained; our restrictions would not be the less prejudicial to our own capital and industry, because other Governments persisted in preserving impolitic regulations.' That petition was presented by Lord Ashburton when Mr. Alexander Baring, and enforced by him with the greatest earnestness; and it is a fact of the highest moment that in the dire distress existing in 1820, whatever may have been the causes in which it originated, the merchants and bankers of London, in the face of this distress, declared to the House of Commons that free trade was the proper remedy for it."

Sir Robert next directs his argument to the specific cases in which hostile tariffs were then maintained against the United Kingdom by foreign nations.

* The sixth volume of the "History of Prices" contains an interesting paper, prepared by Mr. Tooke at my particular request, giving an account of the circumstances which led to the preparation and presentation of the petition of 1820. Some of the details are very curious, as showing the state of public opinion at the time.

"It is said, we cannot fight hostile tariffs with free imports. This is an epigrammatic form of stating the argument. The honourable gentleman, the member for Buckinghamshire, explains it more fully, when he says, that the only way in which we can encounter hostile tariffs is by countervailing duties. Let us dispassionately examine this position. Let us consider it in its application to the three greatest countries with which we deal—Russia, France, and the United States. Take first the United States. The United States imposes duties on our manufactures, say 20 per cent. on our cotton goods. With such a rate of duty, we maintain a not very successful competition in the markets of the United States. What course are we to take? We ought, it is said, to impose countervailing duties on American produce. Would it be wise to have a high duty on raw cotton? What should we gain by it? A complaint is made on the part of the English cotton manufacturer."

He says: "I meet the United States' manufacturer in neutral markets; I meet him in his own market; in the latter to a disadvantage, but in the neutral markets I maintain my ground."

"Shall we combat the hostile tariff of America by countervailing duties on the produce of America—that is, chiefly on raw materials, and cotton among the foremost? Will you tell me how you favour the English manufacturer by imposing a duty on cotton? What other class in this country would derive any advantage from such an impost? We are not dealing with any exceptional case, such as that referred to in the petition of the merchants of London. We are not considering the policy of a duty on American produce as a matter of mere diplomacy for the purpose of extorting some concessions in our own favour. We are discussing whether, as a principle of commercial policy, the hostile tariffs of other countries ought to be combated by countervailing duties. I contend against that doctrine. I say you will more successfully combat the disadvantages under which you labour from hostile tariffs, by buying that of which you stand in need in the cheapest market."

"Let us take the case of France. France will not admit our hardwares or our cotton goods. How should we deal with France? Should we impose a heavy duty on her wine? If so, you are going to reintroduce the principle of the Methuen Treaty into your legislation. By that treaty, because Portugal undertook to admit our woollen goods at low rates of duty, you admitted her wines on a better footing than the wines of France. I thought that treaty had been practically abrogated with the unanimous consent of all persons of experience in matters of trade. In 1845, without procuring any equivalent concessions from France, we reduced the duty on foreign brandy; it was 22s. 6d. a gallon, we reduced it to 15s. What has been the consequence? Have we suffered from that course? Has the advantage been an advantage to France alone? If, instead of reducing the duty from 22s. 6d. to 15s., we had maintained the high duty, we should have had to pay a higher price for our brandy, and certainly should have gained nothing in revenue. You got good brandy, by legal trade, at a less price. Has the revenue fallen by that reduction? In 1845 the revenue from brandy was 1,208,000*l.* the duty was 22s. 6d.; you reduced it to 15s., and in 1848 the revenue was 1,207,000*l.* Thus there has been no reduction of revenue, an increase of importation, a reduction of price to the consumer, a reduction of smuggling—every advantage, and no corresponding disadvantage. What should we have gained by fighting in this case of French produce, a hostile tariff, with countervailing duties?"

"We are dissatisfied with Russia. We think the Russian is a restrictive tariff. Would it be any advantage to lay a heavy duty on the raw produce of Russia, upon her tallow, upon the several articles imported from that country, which we use in our own manufactures?"

The conclusion of this great and powerful argument is the following noble passage:—

"No doubt it would be for the advantage of trade—for our own advantage

and for the advantage of the countries with which we deal—that hostile tariffs should be reduced. It is nothing but the private interest of powerful individuals that induces the Governments of those countries, to the manifest injury of the great body of the people, to keep up those restrictive duties. Unquestionable as would be the benefit derived from their reduction, still, if that benefit cannot be obtained, I contend that by the attempt at retaliation you would aggravate your own loss. Let this also be borne in mind, that the retaliatory system, after it has been once abandoned, is infinitely more difficult than the continued adherence to it might have been. To re-establish duties upon the import of foreign produce, to be regulated by the principle of reciprocity, would be accompanied with insuperable difficulties. You have, in my opinion, no alternative but to maintain that degree of free trade which you have established, and gradually to extend it, so far as considerations of revenue will permit.

“These are the grounds upon which I join issue with the honourable gentleman, and upon which I earnestly deprecate the success of a motion which would displace the noble lord (Lord John Russell) and the advocates of commercial freedom, for the purpose of placing in power those who contend for countervailing duties, who would establish that which they call protection to domestic industry, but which I believe, would be nothing but discouragement and detriment to that industry.”

IV.—*Sources and Nature of the Evidence Employed in this Inquiry.*

I proceed to describe the nature of the materials employed in this paper.

In 1857, on the death of Mr. Joseph Fletcher, I succeeded him as acting Honorary Secretary of this Society, and editor of the *Statistical Journal*. When I mention the name of Mr. Fletcher, I cannot refrain from saying that to him this Society and the cause of statistical inquiry, in its largest and soundest sense, is deeply indebted. Mr. Fletcher was one of the founders and early office bearers of this Society, and in conjunction with Mr. Rawson Rawson (now Sir R. Rawson, K.C.M., who happily again is amongst us, after a distinguished career as a colonial governor), worked with intelligence and zeal in laying deep the foundations of systematic statistical research, then a novel and much misunderstood and much misrepresented branch of the new learning which arose out of the social and economical necessities flowing from the reform legislation of 1832. Mr. Fletcher, like myself, was indebted to Thomas Tooke for introduction to the active work of this Society, and also for introduction to the professional and official employments which in our respective spheres occupied Mr. Fletcher's life and have occupied mine.

Some of our younger members could not undertake a task more useful to themselves or the Society, than a complete examination of the papers by Mr. Fletcher in the earlier volumes of the *Journal*, and a report on the nature and conclusions of these papers, when judged by the larger knowledge and experience of the present time.

In my capacity of editor, and with the full approval of the then council, I established in the office of the Society a plan for the regular and systematic reduction of the official periodical returns

by the Board of Trade, of the foreign trade, and navigation of the United Kingdom, into a concise and tabular form,* to be published in each quarterly number of the *Journal*. The form and arrangement of this Abstract was intended to supply a record so uniform and correct and appropriate, that by its means continued through a series of years, the real character and the important changes in the Foreign Trade of the United Kingdom could be clearly exhibited. One chief reason for adopting this plan, was that in 1857 our free trade legislation had been nearly completed in all its essential parts; and it appeared to the council and myself, that it was the obvious duty of the Society to bring to the test of systematically recorded Facts, the real issues of a mighty economic change arrived at after long and violent controversy. We considered that while the discussion of theories and opinions might be endless, the evidence of a logical series of Facts could not be misunderstood for any long space of time.

The Abstracts established were fourteen in number, namely, four relating to imports and exports, in classes of commodities and groups of countries; one relating to navigation; one to imports and exports of gold and silver bullion; two to the public revenue; one to the prices of corn; one to railway traffic; and five to banking and the foreign exchanges. I ceased to be editor of the *Journal* in 1863, but my successors in office, with the sanction of the council, have continued these tabulations with but little change to the present time.

And it is on the evidence of these materials, gradually accumulated from official sources by official persons during the last twenty years that I have arrived at the results set forth in the present paper; and I may venture, perhaps, to say that it is with no small pleasure I have found that the plan started in 1857 has been so efficacious in supplying materials, abundant and trustworthy, for the discussion of the precise kind of questions they were set on foot to elucidate and determine.

Before entering upon the details of this inquiry, it is perhaps necessary to say, as a preliminary remark, that in treating of the vast extensions of industry and foreign trade in this country during the last twenty or thirty years, it is not for a moment intended to affirm that the whole of these extensions, or even the larger part of them, are due to Free Trade alone. It is a conclusion of common observation and common sense, that the progress of population, invention, science, and resources have all most powerfully contributed to the producing and competing power of this country; but it is intended to be said, and it will, I feel persuaded, be considered

* In Appendix (I) are given examples of three of the abstracts thus settled and continued.

to be proved that since Free Trade became the settled policy of the United Kingdom, all the advantages and resources of the country have been largely, continuously, and most beneficially aided and advanced by the direct and indirect consequences of Free Trade.

In other words, that all the advantages we have had during the last thirty years would, if hampered and shackled by Protection, have failed to procure us more than a very small part of the benefits we have derived from Free Trade.

As regards other countries, it is in like manner not intended to deny the fact of great progress, but it is intended to affirm that that progress would have been far greater under Free Trade.

I now proceed to discuss the specific evidence.

V.—*The Three Leading Questions to be now Answered.*

The three following summaries give the details of the tables relating to trade. They are intended to answer the three cardinal questions:—

1st.—What sort of raw materials and articles of consumption do we import?

2nd.—What sort of British products and manufactures do we export?

3rd.—To what countries and parts of the world do we send our Exports, arranging our customers as far as possible according to the hostility of their tariffs to the United Kingdom, beginning with the most hostile.

The summaries are as follows:—

(I).—*Imports (ex-bullion) into the United Kingdom, declared Real Value (ex-duty) at Ports of Entry (and therefore including Freight and Importer's Profit), distinguished into Classes, according to the character of the Merchandise Imported.*

[This classification of imports has been followed in the *Statistical Journal* since 1857, when it was there adopted for the purpose of systematic observation of the causes and variations of the imports into the United Kingdom.]

Class 1a. Raw Materials: Textile—Cotton.—Wool.

„ 1b. „ „ „ „ Sheep's wool, Silk, Flax, Hemp, Indigo.

„ 2. *Raw Materials*: Hides, Oils, Metals, Tallow, Timber.

„ 3. *Agricultural*:—Guano, Seeds.

„ 4. *Food*:—Grain and Meal, Provisions.

„ 5. *Tropical Produce*:—Tea, Coffee, Sugar, Tobacco, Rice, Fruits, Wines, Spirits.

„ 6. Remainder of Imports, enumerated in official tables.

„ 7. Imports ~~un~~enumerated in official tables.

It will be familiar to the Society that since 1857 the official monthly and yearly trade returns have been enlarged and remodelled in many respects. But abstract (I) just given, has continued to be applicable in all important respects. The two last classes, 6 and 7 of (6) “Remainder of imports enumerated in

“official tables,” and (7) “Imports *unenumerated* in official tables,” have been gradually reduced by leading items in them being specified; but we shall presently see that these two classes still continue to be so considerable as to require special notice.

The next Summary (II) relates to exports:—

(II).—Exports (*ex-bullion*) from the United Kingdom, declared Real Value at Port of Shipment, distributed into Divisions according to the character of the Merchandise exported.

[This classification of exports has been followed in the *Statistical Journal* since 1857, when it was there adopted for the purpose of systematic observation of the causes and variations of the exports from the United Kingdom.]

Division (a.) *Textile Manufactures*:—Cottons, Woollens, Silks, Linen, and Yarn.

„ (b.) *Linen Manufactures*:—Apparel, Haberdashery, Millinery.

„ (c.) *Metals and Minerals*:—Hardware, Machinery, Iron, Copper and Brass, Lead, Tin, Coals, Culm.

„ (d.) *Ceramic Manufactures*:—Earthenware, Glass.

„ (e.) *Indigenous Manufactures and Products*:—Beer, Ale, Butter, Cheese, Candles, Salt, Spirits, Soda.

„ (f.) *Various Manufactures*:—Books, Furniture, Leather Manufactures, Soap, Plate, Watches, Stationery.

„ (g.) Remainder of exports enumerated in official tables.

„ (h.) Exports *unenumerated* in official tables.

The observations just made as regards the two final classes of imports (I), apply still more strongly to the two final divisions (g and h) of this export Table.

The next Table (III) relates to the Groups of Countries to which commodities of British origin were sent, arranged so far as may be in tariff groups.

(III).—Foreign Countries, divided into Tariff Groups as far as possible, according to the DECREASING degrees in which the Tariffs of the respective Groups are hostile to the Admission of Exports sent from the United Kingdom.

[The classification of countries has been followed in the abstracts of official tables given in the *Statistical Journal* since 1857, when it was there adopted for the purpose of systematic observation of the causes and variations of the foreign trade of the United Kingdom.]

(A.) Tariffs most Hostile to the United Kingdom.

1. Northern Europe.—Russia, Sweden, Norway, Denmark and Iceland, and Heligoland.
2. Central Europe.—Germany, Holland, Belgium.
3. Western Europe.—France, Portugal (with Azores, Madeira, &c.), Spain (with Gibraltar and Canaries).
4. Southern Europe.—Italy, Austria, Greece, Ionian Islands, Malta.

(B.) Tariffs less Hostile to the United Kingdom.

5. Levant.—Turkey, Wallachia, Moldavia, Syria, Palestine, Egypt.
6. Northern Africa.—Tripoli, Tunis, Algeria, Morocco.
7. Western Africa.
8. Eastern Africa, &c.—Red Sea, Aden, Arabia, Persia, Bourbon.
9. Indian Seas.—Siam, Summatra, Java, Philippines.
10. South Sea Islands.

(C.) Tariffs still less Hostile to the United Kingdom.

11. China.—Hong Kong, Japan.
12. British India, Ceylon, and Singapore.
13. Mauritius.
14. Cape and Natal.

(D.) North and South America ; Tariffs partly Hostile.

15. United States.
16. Mexico and Central America.
17. Foreign West Indies and Hayti.
18. South America (North), New Granada, Venezuela, and Ecuador.
19. " (Pacific), Peru, Bolivia, Chili, and Patagonia.
20. " (Atlantic), Brazil, Uruguay, Buenos Ayres.
21. British North America.
22. " West Indies, with British Guiana and Honduras.

(E.) Australia.

23. New South Wales, Victoria, South Australia, West Australia, Tasmania, and New Zealand.*

**VI.—Summary of Results of Imports and Exports (United Kingdom),
Twenty-Two Years, 1856-77.**

We can now introduce the properly statistical part of the case, and we shall do this best by proceeding on the Analytical method of dissolving general results into their component particulars.

Dividing the twenty-two years 1856-77 into five groups, the total imports and exports of the United Kingdom have been as follows:—

(IV).—Imports and Exports of UNITED KINGDOM (Merchandise, exclusive of Gold and Silver), Divided into Periods for the Twenty-Two Years, 1856-77, and giving the Proportions per Head of the Population of United Kingdom. (Official Statistical Abstract.)

1	2	3 4		5 6 7 8			9 10 11			
Num- ber.	Periods of Years.	Imports.		Exports.			Total Imports and Exports.			
		Total.	Per Head.	British Produce.			Foreign and Colonial Pro- duce.	Total.	Per Head.	In- crease.
				Total.	Per Head.	Per cnt. of Imports.				
		Mln. £	£ s.	Mln. £	£ s.		Mln. £	Mln. £	£ s.	Per cent.
3	1877-75....	380,	11 10	210,	6 10	55	57,	647,	18 -	—
5	'74-70....	350,	11 -	240,	7 5	70	56,	646,	18 5	25
8	1877-70...	365,	11 5	225,	6 18	61	57,	646,	18 3	48
5	1869-65....	286,	9 9	181,	6 -	63	48,	515,	15 9	24
5	'64-60....	235,	8 1	140,	5 -	59	40,	415,	13 1	29
4	'59-56....	175,	6 5	121,	4 6	69	25,	321,	10 11	—
14	1869-56...	234,	8 -	150,	5 1	6	38,	436,	18-	—

Note.—The total population of the United Kingdom is given at 29.3, millions in 1862—as 31.5, millions in 1871—and 33.4, millions in 1876.

* British West Coast of Africa, Ascension, and St. Helena, Whale Fisheries, Greenland, Davis' Straits Southern Whale Fishery and Falkland Islands, and Channel Islands, have been omitted as unimportant.

The conclusions appearing on the face of this Table (IV) are:—

That comparing the earliest group of four years (1859-56) with the latest group of three years (1877-75), as regards merchandise (excluding bullion)—

- 1st. The *imports* have increased in *amount* by 117 per cent., or from 175 millions to 380 millions; and *per head* by 80 per cent., or from 6*l.* 5*s.* to 11*l.* 5*s.*
- 2nd. That the British *exports* have increased in amount by 74 per cent., or from 121 millions to 210 millions; and *per head* by 52 per cent., or from 4*l.* 6*s.* to 6*l.* 10*l.*
- 3rd. That the exports of foreign and colonial produce, or what is called the transit trade, have increased in *amount* 128 per cent., or from 25 millions to 57 millions; and *per head* by 100 per cent., or from 17*s.* to 34*s.*
- 4th. That the total trade of the United Kingdom, combining imports and exports of all kinds, has increased in *amount* by 100 per cent. (just double), or from 321 millions to 647 millions; and *per head* by 70 per cent., or from 10*l.* 11*s.* to 18*l.*
- 5th. That the proportion of exports (British) to imports has varied very considerably. Even when periods of years are taken, *e.g.*, (a) a *fall* of 10 per cent., or from 69 to 59 per cent., comparing the five years 1864-60 with the preceding five years, 1859-56; (b) a *rise* of 7 per cent., or from 63 to 70 per cent., comparing the five years 1874-70 with the preceding five years 1869-65.
- 6th. That the whole table exhibits large and progressive expansion, both as regards the *amount* of the imports and exports, and the proportion of each *per head* of the advancing population.

There is one result on the face of the table to which reference must be made before further analysis is attempted.

Thus, comparing 1859-56 with 1877-75, we have:—

Increase in	In Amount.	Per Head.
Imports, United Kingdom	117 per cent.	90 per cent.
Exports, " 	74 "	52 "

It is plain from these figures, representing as they do periods separated by nearly twenty years, and being confined as they are to *merchandise* (ex-bullion), that some cause or causes have operated continuously to enlarge the Imports faster than the Exports of *merchandise*—that is to say, we see but a part of the history of the foreign trade when we count only the quantities or values of *merchandise* coming in and going out.

To see the whole history we should know in figures the total claims or demands of the United Kingdom on foreign countries:—

1. For merchandise, freight, and profit, &c. thereon, exported ; and also for freight and charges on merchandise imported.
2. For interest and dividends on capital belonging to natives or others resident in United Kingdom, and invested or employed abroad.
3. For fortunes accumulated by British and foreign subjects abroad, and yearly transferred to United Kingdom.
4. For the principal or capital amounts sent abroad from United Kingdom, to be invested or employed in foreign and colonial loans ; in bonds, &c., of foreign and colonial undertakings ; and in advances in foreign and colonial territories.

If it was possible for us to ascertain in figures all these particulars, we should be able to exhibit in an exact schedule why it is that since 1856 the foreign merchandise imported has risen in amount or value by 117 per cent., while the British merchandise exported has risen in value only 74 per cent.;—or put in a simple form, Why it is that in 1877-75, we got twenty shillings worth of foreign goods for eleven shillings, while in 1859-56 we had to pay fourteen shillings? In the twenty years we have acquired such an enlarged power over the foreigner by means of accumulations of capital and improved production, that he has now to send to us fourteen shillings worth of his merchandise in all the cases in which twenty years ago he had to send us only eleven shillings worth.

VII.—*Summary of Imports and Exports of Four Principal Protectionist Foreign Countries, 1860-75.*

We will now apply the same test of general results to certain foreign countries remarkable for their enforcement of protectionist tariffs as contrasted with the free trade code of the United Kingdom.

The following Table (V) is compiled from the official statistical abstract of foreign countries published by Board of Trade, and unfortunately goes back only to 1860, and as regards the German Empire, gives the figures for 1875 only.

(V).—**Foreign Countries.** IMPORTS (*General*) and EXPORTS (*Special or of Native Production and Manufacture*), *Four Periods, 1860-75. TOTALS per Head of Population. Five Leading PROTECTIONIST Countries.* (From "Stat. Ab. For. Cts.," iv, p. 31.)

Year.	Imports, Million £.						Imports per head. Shillings only.					
	France (Genrl.).	Germany.	Austria.	Russia.	United States.	United Kingdom.	France.	Germany.	Austria.	Russia.	United States.	United Kingdom.
	£	£	£	£	£	£	s.	s.	s.	s.	s.	s.
1860	106,	—	32,	25,	74,	210,	68	—	20	7	48	140
'65	141,	—	37,	24,	50,	271,	88	—	22	7	30	186
'69	160,	—	60,	54,	87,	295,	88	—	34	14	46	196
'75	178,	237,	84,	85,	115,	374,	100	105	46	22	58	240
Increase	53,	—	52,	60,	41,	164,	32	—	26	15	10	100

Year.	Exports, Million £.						Exports per head. Shillings only.					
	France (Spec.).	Germany.	Austria.	Russia. (Genrl.).	United States.	United Kingdom.	France.	Germany.	Austria.	Russia.	United States.	United Kingdom.
	£	£	£	£	£	£	s.	s.	s.	s.	s.	s.
1860	91,	—	26,	27,	66,	135,	50	—	16	7	43	92
'65	123,	—	34,	32,	28,	165,	66	—	20	8	18	115
'69	123,	—	44,	42,	57,	190,	66	—	24	10	30	121
'75	155,	176,	50,	60,	104,	223,	84	80	28	16	54	142
Increase	64	—	24	33	38	90	34	—	12	9	11	52

Note.—As regards Germany, I find on inquiry of Mr. Giffen, that there are as yet no official figures for 1860-65-69.

It will scarcely be said that on the face of these figures the United Kingdom suffers in any particular when compared with any one of the four countries for which the imports and exports are given at each of the four dates during the sixteen years; or indeed with all the four countries (France, Austria, Russia, and United States) in combination; in other words, the thirty millions of people in the United Kingdom, aided by Free Trade, bear most advantageous comparison with the one hundred and fifty millions relying upon protection. Thus :—

(A).—*Increase in Imports, 1860-75.*

Four Foreign Countries, France, Austria, Russia, and United States.....	206 mln. £ = 26 per head.
United Kingdom.....	164 „ = 100 „

Increase in Exports, 1860-75.

Four Foreign Countries	160 mln. £ = 22 per head.
United Kingdom	90 „ = 52 „

If the several countries be compared *singly* with the United Kingdom, as in fairness they should be, seeing that the population is about equal (Russia excepted), and the climate better, and the natural resources greater than the United Kingdom, not one of them exhibits progress in any degree approaching that of the United Kingdom.

But more than this: the Table (V) must be read subject to the evidence in the next Table VA, which shows the very large expenditure between 1860 and 1875 in each of the five foreign countries in Railway extension, and also, in a smaller degree, in Telegraph extension.

(VA).—*Railway Mileage Open, 1860-75. United Kingdom and in the Five Foreign Countries as below.*

Years.	Railway Mileage Open.					
	France.	Germany.	Austria.	Russia.	United States.	United Kingdom.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1860.....	5,800	7,000	1,800	634	30,700	10,400
'65.....	8,394	8,800	2,210	2,420	35,100	13,300
'69.....	10,500	15,100	3,720	6,665	53,000	15,500
'75.....	12,400	22,700	7,200	11,600	75,000	16,700
Increase.	6,600	15,700	5,400	11,000	45,000	6,300
Proportion..}	More than doubled	More than threefold	Threefold.	Nearly twentyfold	Two and a-half fold	60 p. ct. only

Note.—Telegraphs. The miles of wire in *France* were 42,000 in 1861, and 78,000 in 1875; in *Russia* 37,000 in 1864, and 101,000 miles in 1874; in *Germany* 45,000 in 1867, and 82,000 in 1875.

We have here an increase of 38,000 of railway mileage in France, Germany, Austria, and Russia, and of 45,000 miles in the United States between 1860 and 1875. Now, including engines, cars, stations, bridges, and all the appliances of a railway, it is a moderate estimate to say that these extensions would cost the respective countries an average of 5,000*l.* a mile; that is to say, 190 mln. £ for the four European countries, and 225 mln. £ for the United States, or together 415 mln. £.

The effect of these expenditures of 190 and 225 mln. £ during the fifteen years under review upon the imports and exports of the several countries is obvious. In the first place, the imports into each of the foreign countries would be largely increased by the cost of all the materials, engines, &c., purchased abroad, and by the cost of such outside commodities as were consumed by the labourers employed in making the railways; and although there are no means

of saying exactly how much these imports might amount to, I consider that it is a moderate estimate to put down *one-half* the cost as procured by imports; that is to say, that in the four European countries 95 mln. £, and in the United States say 112 mln. £.

In the second place, as regards the *Exports*, the immediate effect of every main line open was of course to bring into the market at lower prices, by reason of lessened cost of transport, increasing quantities of the raw produce and grain, fibres, tallow, animals, &c., produced in the respective countries. Hence the exports in each case were increased simply and solely because railway carriage penetrated into districts previously cut off from external markets.

The Lines in the foreign countries were all of them main arterial lines, while the 6,300 new mileage in the *United Kingdom* was almost entirely subsidiary lines of the third and fourth order of importance.

These facts and considerations lead us to the following conclusions of the increase of Imports. Thus:—

(B).—*Corrected Estimate of Increase of Imports, 1860-75.*

			s.
Four foreign countries—France, Austria, Russia, and United States, as in (A)	206 mln. £	=	26 per head
Deduct for cost in Imports of 68,000 miles of new railway at 2,500l. per mile	170 "	=	22 "
* Leaves for increase of ordinary imports....	36 "	=	4 "
United Kingdom, ordinary increase	164 "	=	100 "
United Kingdom <i>more than the four</i> countries	118 "	=	96 "

These are results with which Free Trade may well be satisfied.

VIII.—*Detailed Examination of Imports and Exports (United Kingdom), 1856-77.*

We may now consider the summary tables which set out the course of our foreign trade, first as regards the kinds of imports we have received; second, as regards the kinds of exports we have sent away; and third, as regards the countries to which they have been sent.

The next Table (VI) gives in groups of years (founded on the declared values) the *percentages* of the total imports of seven leading classes of imports, *e.g.*, (1) raw cotton; (1a) sheep's wool, silk, flax, &c.; (2) raw materials, hides, oils, metals, tallow, timber; (3) agricultural, guano, seeds, &c.

* These increases would in strictness be greater, because the 170 mln. £ would be distributed over the fifteen years.

VI).—Imports into United Kingdom, Distinguished into Eight Leading Classes of Imported Commodities, showing the Percentage Proportion of Each Class to the Average Annual Total Imports (Declared Values) of all Classes during the several Periods of the Twenty-Two Years, 1877-56, being Summaries of Tables B and D in Appendix.

Number.	Periods of Years.	Classes of Imported Commodities into the United Kingdom.							
		1	1a	2	3	4	5	6	7
		Cotton Wool.	Textile, &c.	Raw Materials.	Agricultural.	Provisions.	Tropical.	Remainder of Enumerated Imports.	Unenumerated Imports.
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
3	1877-75....	11	13	11	3	23	16	12	10
5	'74-70....	16	14	11	2	19	16	10	11
8		14	14	11	2	21	16	11	11
5	1869-65....	20	15	8	2	15	14	3	20
5	'64-60....	20	15	10	2	16	15	2	20
4	'59-56....	17	15	12	3	13	16	2	20
14		19	15	10	2	15	15	3	20
22	'77-56....	17	14	10	3	17	15	6	16

Note.—May be read thus: In the three years 1877-75 the average annual declared value of the imports into the United Kingdom of class 2, raw materials, was equal to 11 per cent. of the total imports of all kinds into the United Kingdom. Col. 6 gives the "Remainder of the Enumerated Imports," that is, the residue of declared values remaining after cols. 1-5 have been classified; and col. 7 gives the further residue of imports not enumerated in detail in the official tables, but inserted in one line as "Unenumerated Articles of Import."

The evidence of this Table (VI) shows conclusively that whatever else may have happened to the trade of this country, at all events its annual consumption of foreign commodities employed for the most part as Raw Materials for manufacture has not diminished between 1856 and 1877.

In the case of raw cotton the scarcity prices of 1860-69, arising from the American civil war, raised the percentage of col. 1 during that group of years very considerably above the average level; and from the same cause it ensues that the declared values (prices) of col. 1a, sheep's wool, and other textile raw materials, were abnormally high in 1860-69. Allowing for these obvious corrections, the table shows that there has been no abatement in the consumption of raw materials.

The table shows further that in the two categories (cols. 4 and 5) of the consumption of articles of food, both *agricultural* (col. 4), comprising wheat, grain of all kinds, and provisions; and *tropical*

(col. 5), tea, sugar, coffee, tobacco, &c., there has been, as we all know from personal experience, a large and general augmentation.

There has also been a large increase in the absolute and relative proportion of the crowd of miscellaneous articles which make up the "Remainder of the Enumerated Imports." These have risen from a percentage of 2 per cent. in 1859-56 to 12 per cent. in 1877-75, and an increase of this magnitude under such a head indicates very strongly the existence of new trades and the opening of new fields of enterprise.

In the next Table (VII) a similar test is applied to the Exports.

(VII).—**Exports (British Produce and Manufactures) from United Kingdom, arranged in Eight Leading Divisions of Exports, so as to Exhibit the Percentage Proportion of Each Division to the Average Annual Total (Declared Value) Exports of the several Periods of the Twenty-Two Years, 1877-56, being Summary of Tables (C and D) in Appendix.**

Number.	Periods of Years.	Divisions of Exported (British) Goods and Manufactures.							
		Textile Manufactures.	Sewed Manufactures.	Metals and Minerals.	Ceramic.	Indigenous.	Various.	Remainder of Enumerated Exports.	Unenumerated Exports.
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
3	1877-75	52	3	23	1	2	3	10	8
5	'74-70	51	4	24	1	3	2	8	6
8		51	4	23	1	2	2	9	7
5	1869-65	58	11	20	1	3	2	6	5
5	'64-60	54	5	20	2	3	3	5	6
4	'59-56	53	5	23	2	4	4	3	7
14		55	7	21	2	3	3	5	6
23	1877-56...	54	4	22	1	3	3	6	6

Note.—May be read thus: In the three years 1877-75, the average annual declared Exports from the United Kingdom of division *a*, *Textile Manufactures*, were equal to 52 per cent. of the Total Exports of all kinds of British products and manufactures. Under the Divisions *g* and *h* the observations apply which have been already given in the note of Table VI.

The classes of Imports (Table VI) exhibited no decline, nor do the divisions of Exports (Table VII). Making the needful allowance for the scarcity prices of textile raw materials in 1860-69, the exports (*a* and *b*) of textile manufactures is as large in 1877-75 as twenty years before. The exports (*c*) of metals and minerals is greater; and under *g* and *h* the new trades and manufactures indi-

cated by the increase in the remainder of enumerated and unenumerated exports is exceedingly gratifying.

IX.—Geographical Distribution and Derivation of Exports from, and Imports into, United Kingdom, 1858-77.

We now come to the geographical distribution of the British exports of all kinds to groups of foreign countries, arranged so far as practicable in the order of decreasing tariff hostility to the United Kingdom—Group A being most hostile, as including the European States.

(VIII). — **Exports (British Produce and Manufactures) from United Kingdom to Foreign Countries, arranged in Tariff Groups, beginning with A, "most Hostile to United Kingdom," Exhibited by means of the Percentage borne by the Exports to each Group, as compared with the IMPORTS from the same Group—(Merchandise only and Declared Values), being Summaries of Tables A and D in Appendix.**

Number.	Periods of Years.	Foreign Countries in Tariff Groups, beginning with A, "most hostile to United Kingdom."					The Total Exports in the Six Groups were of Total Imports equal to
		A.	B.	C.	D.	E.	
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
3	1877-75....	51	56	73	42	88	55
5	'74-70....	66	66	70	66	87	66
		58	61	72	54	87	60
5	1869-65....	63	66	66	67	108	62
5	'64-60....	57	53	53	57	161	60
2	'59-58....	64	68	107	60	216	71
20	1877-58	60	62	61	60	132	64

Note.—May be read thus: In the three years, 1877-75, the average annual declared value of the *exports* from United Kingdom (of British goods) to foreign countries in Tariff Group A (most hostile to United Kingdom) was equal to 51 per cent. of the total *imports* from the same countries into the United Kingdom.

In 1859-58 the *Percentage* of the total exports sent to Group A was 64 per cent; in 1874-70 it was 66 per cent.; and in 1877-75 only 51 per cent. Upon this decline two observations are to be made. First, the table shows that with Group A the fluctuations have been considerable, as thus: 64, 57, 63, 66 per cent.; and second, that the magnitude of a trade depends more on the capacity as *purchasers* of the countries to which the goods are sent, than on the condition of the country in which they are produced. Now in 1877-75 no one needs to be told that over all continental Europe there has been most acute industrial distress and stagnation. In

1859-58 the exports amounted to 64 per cent. of the imports in Group A; fifteen years later, in 1874-70, the percentage was 66 per cent.; and in 1877-75 it was 51 per cent., but the proportions have been irregular—thus 64, 57, 63, 66, 51. The last fall of 15 per cent. is the largest, and to the reasons for it I shall presently refer.

With Group B the countries of the *Levant and Northern Africa*, the trade has been satisfactory, but still fluctuating, as the figures show, thus 68, 53, 66, 66, 56 per cent. The fall to 56 per cent. in 1877-75 (from 66 per cent.) can hardly excite surprise, considering the rapid decay of Turkey in these years.

In Group C—*China, Japan, British India, Mauritius and the Cape*—the figures are more irregular than in A or B—thus 107, 53, 66, 70, 73. The two years 1859-58 were largely affected by the Indian Mutiny. In 1864-60 the exports were 53 per cent. of the imports, and in 1877-75 they had become 73 per cent. of the imports, an increase of nearly one half.

Group D represents the *United States and the rest of the two Americas*, including all the islands and British possessions, and here again are irregular figures, e.g., 60, 57, 67, 66, 42. Considering the condition of the whole of North America since 1873, I suppose that no competent person will be surprised at the fall from 66 to 42.

Group E is confined to the *Australias and New Zealand*, and presents phenomena not found in any of the other groups, viz., a state of things under which for the eleven years 1858-69, the exports of merchandise to this group very largely exceeded the imports from it—as thus, 216, 161, 108 per cent. of exports to 100 of imports. Since 1861 the percentage of exports has fallen to 87 and 88. The explanation is twofold: first that Table VIII does not include bullion, the principal import from Group E down to 1870; and second, that to a new colony, carrying on chiefly mining and pastoral industries, by means of a large immigration of British labour, the exports of British produce and manufacture were necessarily predominant.

In (VIII) the last column gives the *percentage of total exports to total imports* as regards the six groups of countries (A—E), and the figures for the twenty years present this series—'71, '60, '62, '66, '55.

X.—*Rapid Growth of New Industries in the United Kingdom 1856-77, as indicated by supplemental Imports and Exports.*

I have already referred to the rapid growth during the last thirty years of what may be called **Supplementary Imports and**

Exports—that is to say, the large number of new and miscellaneous articles which grow up year by year, and for the sake of conciseness and uniformity have to be entered in the official tables under the title of “*Unenumerated Articles*.” In the abstracts compiled for the *Statistical Journal*, there remained, after setting out the more important heads, a considerable residue of articles which although enumerated in the official tables, had to be in the Abstract entered as “remainder of enumerated articles.”

In Tables (B) and (C) in Appendix, it will be found that these two classes present the following startling totals :—

(IX).—*Progress of Supplemental Imports and Exports, United Kingdom, 1856-77. Declared Values.*

	1877.	1870.	1865.	1860.	1856.
Imports.	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £
(a) Remainder of enumerated	45	17	6	4	3
(b) <i>Unenumerated</i>	39	64	55	42	35
	84	81	61	46	38
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Percentage of total Imports	21	25	22	21	22
Exports.	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £
(a) Remainder of enumerated	21	16	10	4	5
(b) <i>Unenumerated</i>	17	11	8	9	8
	37	27	18	13	13
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Percentage of total Exports	19	13	11	10	11

We have here a doubling of the supplemental *imports* in the twenty-one years 1856-77, or from 38 to 84 mln. £, the proportion of the total imports remaining at 21 per cent.

The supplemental *exports* increase nearly threefold, as from 13 to 37 million pounds, and the proportion to the total exports rises from 11 to 19 per cent.

In both cases the progression of the figures is rapid and large and strongly suggestive of a vigorous and inventive trade in which the rapid appearance of new commodities is perpetually pressing open and enlarging the previous classifications and vocabularies.

In Tables (E and F) in the Appendix, I give by the kindness of the Statistical Department (under Mr. Giffen), considerable details of the kind of articles entering into the large totals now under consideration, and to these details I have to refer.

The following Table (X) presents a summary of the supplemental imports.

(X).—**Supplemental Imports, 1876-86-86.** *Abstract of Table E in Appendix.*

[(a) Represents "Remainder of Enumerated Imports;" and (b) "Unenumerated Imports."]

Classes.		1876.			1866.			1856.		
		a.	b.	—	a.	b.	—	a.	b.	—
		Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £
I. Raw materials		17	9	26	—	—	16	—	—	11
II. Agricultural materials		10	3	13	—	—	9	—	—	3
III. Manufactured articles		14	4	17	—	—	10	—	—	4
		41	16	56	—	—	34	—	—	17
IV. Other articles		5	22	26	—	—	32	—	—	21
Totals {	Supplmntl. impts. (1)	46	38	83	—	—	66	—	—	38
	Classified impts. (2)	—	—	291	—	—	232	—	—	138
	Total imports (3)	—	—	374	—	—	298	—	—	178
Per cent. {	Supplemental (2)	—	—	Per cent. 22	—	—	Per cent. 22	—	—	Per cent. 21
	Classified (2)	—	—	78	—	—	78	—	—	79
	Total (3)	—	—	100	—	—	100	—	—	100

The progress here shown is satisfactory—thus, in new *raw materials*

The series is, 11, 16, 26 mln. £;

In *agricultural raw materials*, seeds, manures, &c.,

It is 3, 9, 13 mln. £.

The Imports of *manufactured articles* show a series of only 4, 10, 17 mln. £;—The odds and ends of *miscellaneous* read 21, 32, 26; and the grand totals for the twenty-one years 1856-77 exhibit the striking progression of 38, 66, 83 mln. £.

The next Table (XI) applies the same test to the supplemental *Exports*.

(XI).— **Supplemental Exports, 1876-86-56.** *Abstract of Table F.*

[(a) Represents "Remainder of enumerated exports;" and (b) Unenumerated exports.]

Classes.		1876.			1866.			1856.		
		a.	b.	—	a.	b.	—	a.	b.	—
		Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £
I. Agriculture and food		2	2	4	2	—	2	1	1	2
II. Various materials		5	3	8	4	2	6	1	1	2
III. Artistic manufactures		—	—	1	—	1	1	—	—	—
IV. Sundry manufactures		8	2	10	4	1	5	—	—	2
		15	7	22	9	5	14	3	4	7
v. Other articles.....		5	10	15	2	3	7	1	4	5
Totals	Supplmntl. Expts. (1)	20	17	37	12	9	21	4	8	12
	Classified exports ....(2)	—	—	163	—	—	168	—	—	104
	Total exports .....(3)	—	—	200	—	—	189	—	—	116
Per cent.	Supplemental (1)	—	—	18	—	—	11	—	—	10
	Classified .....(2)	—	—	82	—	—	89	—	—	90
	Total .....(3)	—	—	100	—	—	100	—	—	100

Nothing short of an examination of the details given in App. (F) can afford an insight into the multitude of articles which go to make up the totals of these supplemental exports. But the progress of the totals is satisfactory enough through the twenty-one years—thus 12, 21, 37 million pounds, and the *percentages* 10, 11, 18.

These results are evidence enough that the inventiveness, skill, and enterprise, of the United Kingdom, as an exporting country—all hostile tariffs notwithstanding—is greater than ever.

XI.—*The Effect of Variations of Prices of Large Groups of Commodities on the Declared Values of Imports and Exports.*

We have now analysed with some care the figures representing the course of the imports and exports in groups of years, and we have seen that there is a general law of irregularity in the numbers—an irregularity which presents very considerable variations of excess and defect.

It is natural and inevitable that the phenomena should present these aspects. An extensive foreign trade when observed through a series of years, must both in *quantities* and *value* expand and contract, in one or several of the countries embraced, in obedience to causes so obvious and universal as these four, viz.:—

1. Productiveness of seasons.
2. War or peace, famine or pestilence.
3. Industrial prosperity or distress.
4. The discovery of new facilities of navigation and transport, production, and distribution.

All these are influences which must and do produce wide fluctuations in the *Prices* of both imports and exports, and therefore in the Total Values representing the totals and the component parts of both.

The following Table (XII) will exemplify what is here meant, particular reference being called to the details given in Tables (G and H) in App.

(XII).—*Wholesale Prices in London, 1831-77, being Abstract of Tables (G and H) in Appendix, in which the Yearly and other Details are given.*

[The Datum line of the table is the figure 100, assigned to the six years 1845-50; and the corresponding lines for 1831-50 and 1831-45, are from Professor Jevons's paper in *Statistical Journal* for 1865, entitled "On the Variation of Prices and Value of the Currency, 1782-1865."]

1	2	3	4	5	6	7	8	9	10
Num- ber.	Annual Average of the Periods of Years as under.	(A) All Com- modities.	(B) Raw Materials, Textile.		(C) Raw Materials, Sundry.		(D) Tropical Food	(E) Wheat.	(F) Pro- visions.
		(44 Articles).	Cotton and Cloth.	Silk, Flax, Wool.	Oils, Timber, Tallow, Leather.	Copper, Iron, Lead, Tin.	Coffee, Sugar, Tea.		Butchers' Meat.
3 5	1877-75	122	104	118	123	110	117	90	146
	'74-70	128	131	136	118	124	113	104	140
		125	127	127	120	117	115	97	143
5 5 3	1869-65	136	200	144	115	104	111	101	126
	'64-60	150	205	140	119	118	119	91	115
	'59-57	125	121	135	121	130	127	96	108
13	1869-57	134	175	140	118	118	119	96	116
21	1877-57	129	151	134	119	117	117	97	130
1 1	1853	115	110	116	112	120	106	85	108
	'51	108	132	106	93	96	111	71	87
6	1845-50	100	100	100	100	100	100	100	100
20	1831-50	109	138	120	112	106	126	105	—
15	1831-45	115	151	130	115	108	135	106	—

On the face of this table there is very plainly visible the effect on Prices of three prominent causes which have operated during a great part of the last twenty years, viz. :—

1. The effect of the United States' Civil War in nearly stopping the supply of American Cotton, and so raising the prices of that article, and of all cognate articles, such as wool, silk, flax, &c.
2. The effect of the repeal of the Corn Laws in 1846, in reducing the prices of wheat in this country by the admission of foreign supplies.
3. The effect on the price of butcher's meat, of repeated outbreaks of cattle disease in this and other countries, and the enlarged consumption of animal food by the working classes.

In cols. 3, 4, 5, and 10, we find that during the following periods of years, the prices of the whole forty-four articles, and of cotton, silk, flax, wool, and British manufactures were represented by the following series :—

(XIIA).—*Wholesale Prices in Groups of Commodities.*

Years.	Textile.			All Commodities.	Provisions.
	Col. 4.	Col. 5.	Cols. 4 and 5.	Col. 3.	Col. 10.
1860-64 (5)	205	140	345	150	115
"65-69 (5)	200	144	344	136	126
"70-74 (5)	131	136	267	128	140
"75-77 (3)	104	118	222	122	146

These are vast changes in prices, and therefore in aggregate values. Thus the largest group of all—textile materials—declined from 345 in 1860-64, to 222 in 1875-77, or in a proportion represented by 123. In the entire group of forty-four commodities observed, the fall was from 150 to 122. With butcher's meat there was the opposite result of a rise from 115 to 146.

Measured therefore by *quantity*—which is a real *economic* test, that is to say, the test which measures the extent of employment, machinery, warehouse room, &c., required to handle and turn into use the weight and values of commodities coming into and going out of the country—we must not fail to see that with the lower prices of 1875-77, the figure 122 of value or price, means in *quantity* the same as the figure 150 of value or price in 1860-64.

XII.—Remarkable instances of Variations of Prices arising from Fiscal Reform and Improved means of Transport.

I have said that facilities of transport and navigation, and the removal of fiscal hindrances to trade, are among the most powerful of the causes affecting prices.

The next Table (XIII) is probably as pointed an illustration of this fact as could easily be found. It represents in decades since 1821, the course of the prices of Wheat in seven European countries, beginning with England and proceeding to countries so dissimilar to it as Hungary and Sweden.

(XIII).—Average Annual Prices of Wheat in Seven European Countries, in Five Decades of Years, 1821-70, in Austrian Silver Gulden per Hectolitre. From "Statist" newspaper, 16th March, 1878.

[1 A. s. g. = 2s., and 1 hectolitre = 2·75 English bushels.]

1 Ten Years.	2 3 4 Old Western Countries.			5 North-Eastern Country.	6 7 South-Eastern Countries.		8 Northern Country.
	England.	France.	Belgium.	Prussia.	Austria.	Hungary.	Sweden.
	A. s. g.	A. s. g.	A. s. g.	A. s. g.	A. s. g.	A. s. g.	A. s. g.
1821-30....	10 25	7 35	6 44	5 65	4 24	3 33	—
'31-40....	9 60	7 61	7 31	5 27	4 35	3 67	—
1841-50....	9 15	7 89	7 99	6 41	5 57	4 87	5 56
'51-60....	9 40	8 84	7 20	8 07	8 34	7 23	7 34
1861-70....	8 80	8 59	11 85	7 79	10 30	7 70	7 31

Percentage Rise or Fall of the above.

1 Ten Years.	2 3 4 Old Western Countries.			5 North-Eastern Country.	6 7 South-Eastern Countries.		8 Northern Country.
	England.	France.	Belgium.	Prussia.	Austria.	Hungary.	Sweden.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
1821-30....	100	100	100	100	100	100	—
'31-40....	96	103	113	93	102	111	—
1841-50....	89	107	126	112	127	146	100
'51-60....	92	110	112	143	196	217	150
1861-70...	86	117	188	138	242	231	149

The results of this table are in the highest degree curious and instructive. Thus:—

Periods.	England.	France.	Russia.	Austria.	Hungary.
1821-30.....	100	100	100	100	100
'61-70.....	86	117	138	242	231
Rise	—	17	88	142	131
Fall	14	—	—	—	—

It is quite clear that no mere variations of seasons will account for these large differences, especially in Austria and Hungary. The seasons of course have had their influences; but the really operative causes have been (1) as regards England, the free admission of foreign corn; (2) the results of that free admission, coupled with railways and telegrams—in the smallest degree in France, in a large degree in Prussia, and in a very powerful degree in the comparatively backward but fertile regions of Austria and Hungary.

These figures also suggest a caution always needed in investigating the variation of prices. A careless observer might be disposed to say that a large depreciation of gold was fully proved by the rise of corn prices in Austria and Hungary, when the real reasons of the rise lay quite apart from any influence of the precious metals, viz., (1) the opening of a constant market for corn in England; and (2) the provision in the producing countries of cheap and swift means of conveyance.

XIII.—*A Discussion of Corrections required in the Official Declared Values of Imports and Exports.*

We are now able to understand how large a share the variations of Prices necessarily have in determining the figures of "Declared Values" by which we most generally estimate the course of foreign trade.

But there are other corrections to be applied before we can arrive at an approximate answer to the question whether the Imports into a country during any particular year or period, really imply that that country is paying for them not by means of its current industry, but by sending away part of its accumulated capital.

The official figures of declared values give the values of the Imports as stated by the importers, their clerks, or agents, at the port of arrival, and include therefore obviously the freight which has been incurred on the voyage from the foreign place of shipment, that freight being mostly payable to a British shipowner; and also a variety of charges for landing and warehousing the goods, also payable to persons in this country. Hence the real debt to foreigners for Imports is much less than the declared value of the official tables.

In like manner the declared values of the Exports is less than

the real demand on the foreign purchaser, and for reasons of the same kind. The freight of the goods to the foreign port of destination is not included in the declared value at the port of shipment, nor insurance, nor profit, nor several other items which the Exporter or some person in this country receives from the foreign consumer.

The very important degree in which corrections of this nature enter into the formation of an exact account of our foreign trade is shown by the following statement (XIV), rearranged from materials contributed by Mr. A. D. McKay, a merchant of Liverpool of much practical experience, to the "Economist" newspaper of 8th December, 1877. Mr. McKay was led to furnish these details in consequence of a letter to the same paper in November, 1877, by Mr. Rathbone, a gentleman of high reputation, also of Liverpool, the object of which was to prove that for two or three years past this country has been largely spending its capital in excessive imports.

(XIV).—*Suggested Corrections required in the Official Tables of the Declared Values of Imports and Exports of Merchandise and Bullion, into and from United Kingdom, during the Nineteen Years 1858-76, in order to arrive at an Approximate Statistical Statement of the Real Balance of Indebtedness between United Kingdom and other Countries, contributed by A. D. McKay, Esq. (Liverpool), Merchant, to the "Economist" newspaper, 8th December, 1877.*

I shall take the imports and exports given officially for the nineteen years embracing both 1858 and 1876, so as to have before us a series of years sufficient to cover merely temporary fluctuations.

The total amount of *merchandise and bullion*, imported and exported into and from United Kingdom, were:—

United Kingdom.—Totals, Nineteen Years 1858-76.

Imports	5,986 mln. £	= 315 mln. £ per ann.
Exports	4,793 "	= 252 "
<i>Excess—Imports.....</i>	<u>1,193</u>	<u>63</u>

Separating the merchandise and bullion, the figures are in million £.

United Kingdom. Totals, Nineteen Years, 1858-76.

Total Imports and Exports of British, Foreign, and Colonial Produce.	Totals—Mln. £.		Annual—Mln. £.	
	Merchandise.	Bullion.	Merchandise.	Bullion.
Imports.....	5,432	554	286	29
Exports*	4,332	460	228	24
Excess—Imports	1,100	94	58	5

* The Exports were 3,444 mln. £ British Produce and Manufactures, and 888 mln. £ Re-Exports of Foreign and Colonial Produce—total 4,332 mln. £.

Taking the reading adopted by Mr. Rathbone, I shall proceed on the ground that the "value of imports given by Board of Trade is based on the prices of articles current in this country at the time of arrival, subject to deduction of foreign charges and profits, due to British manufacturers and merchants," I submit thereon the following—

Schedule of DEDUCTIONS to be Made from the Imports, and ADDITIONS to be Made to Exports into, and from, United Kingdom, in Order to Arrive at the Amount representing Approximately the Real Demand Due to the Foreigner in respect of such Imports. (In Mln. £.)

(A) Deduct from Imports—		Mln. £.
I. (1) <i>Freights</i> in British bottoms, 1858-74, 149 million tons at 30s.		224·8
(2) „ in 1875-76, 26 million tons at 20s.		26·5
(3) „ in bullion imported, 554 mln. £ at 5s. per cent.		1·3
		<hr/> 252·6
II. (4) <i>Marine insurance</i> on three-fourths of total imports, allowing one-fourth to be covered in foreign offices; thus three-fourths of 4,489 mln. £, plus 10 per cent., say 448 million pounds, or together 4,938 mln. £, at 15 per cent.		37·0
		<hr/> 289·6
III. (5) <i>Charges</i> —Buyers' discount, ranging from 1½ to 2½ per cent., but averaging, on a moderate estimate, 1½ per cent., on 5,432 mln. £		95·0
(6) „ Banker's commission on same, at 2s. 6d. per cent.		6·7
(7) „ Commission and brokerage on same, at 1½ per cent.		81·4
(8) „ Foreign bill stamps on same, at 2s. per cent.		5·4
(9) „ Sundry charges on <i>imported</i> goods, consisting of dues, wharfage, cartage, portorage, and other receiving and warehousing expenses, 2,666 million tons, at 3s.		40·0
		<hr/> 228·4
<i>Total deductions from Imports = say } 8½ per cent., on 5,896 mln. £</i>		<hr/> 518·0
(B) Add to Exports—		
IV. (10) <i>Freights</i> in British bottoms, 1858-74, 167 million tons at 20s.		251·4
(11) „ in 1875, 30 million tons at 20s.		29·6
(12) „ on bullion, 460 million tons at 5s.		1·1
		<hr/> 282·1
V. (13) <i>Marine insurance</i> on total exports, 4,793 mln. £, add 10 per cent., or together 5,272 mln. £, at 15 per cent.		39·5
		<hr/> 39·5
VI. (14) <i>Profit</i> on exports, at say 5 per cent.		216·6
(15) „ six months' interest on exports at 5 per cent. per annum		109·3
(16) „ banker's commission and exports, 4,332 mln. £ at 2s. 6d. per cent.		5·4
		<hr/> 331·4
<i>Total addition to Exports = say 18½ per } cent., on 4,793 mln. £</i>		<hr/> 658·0

With these deductions from imports and additions to exports, we have—

Foreign Trade of the United Kingdom, Nineteen Years, 1858-76.

Corrected Account. (Mln. £.)

<i>Imports.</i>		<i>Exports.</i>	
Official totals	5,986	Official totals	4,793
Deduct A	518	Add B	652
			5,445
		Net apparent balance	
		against the United	
		Kingdom	23
	5,468		5,468

I have by these detailed corrections, all of them founded on long experience, reduced to 23 mln. £ the excess of imports of merchandise and bullion, which according to the bare official figures stand at 1,100 mln. £; and I have not taken any account of the large annual sums due to the United Kingdom from foreign and colonial countries for interest on loans, shares in railways, and mercantile advances.*

XIV.—Further Evidence on the same Subject.

In substance I have little doubt but that Mr. McKay is right in both these schedules, but he applies them too rigidly and universally to the *whole* of the imports and exports of the nineteen years 1858-76. The small balance of 23 million pounds at which he arrives as the real excess of imports in the nineteen years, is conclusive proof that he has not allowed sufficiently for the large number of instances in which the *whole* of his deductions and additions do not apply.

Mr. McKay's general deductions from and additions to, declared values are:—

- (A) Deduct $8\frac{1}{2}$ per cent. from the Imports,
Add $13\frac{1}{2}$ per cent. to the Exports.

I feel great confidence in saying that these percentages, when applied to the *whole* of the two categories, are beyond the truth, and while I do not pretend to be able to give the Percentages which are exact, I have a strong opinion that if we

- (B) Deduct 5 per cent. from the Imports,
Add 10 per cent. to the Exports,

we shall be not far from the actual state of things.

* In the "Economist," December, 1877, "A Merchant" gives the following actual facts relating to charges payable in *United Kingdom* on exports from it. "I have before me an invoice of 120 bales Manchester goods shipped to India. The declared value of them for export is 1,825*l.*, which is the cost price in Manchester of the contents of these bales. But I have to pay 80*l.* freight, 32*l.* insurance, and other charges amounting altogether to 150*l.*; so that the value of these goods when they left this country was not 1,825*l.* but 1,975. The 150*l.* has been paid to shipowners, underwriters, &c., in this country; but I expect to receive the whole amount 1,975*l.* and some profit besides, from the buyers in India."

Upon this basis the following Table (XV) is framed :—

(XV).—*Corrected Summary of Imports and Exports of Merchandise only (Average Annual Declared Value), United Kingdom, Twenty-Two Years 1856-77.*

[See also amended Table (XVA), p. 280].

[The Imports are made less by 5 per Cent. for charges, &c., accruing in and due to United Kingdom, and the Exports are made more by 10 per cent. for same reason—giving in cols. 5, 8, 9 the corrected results. The Exports are British produce and manufactures only.]

Num- ber.	Periods of Years.	Imports. All Commodities.			Exports. British Produce only.			Cor- rected Excess of Imports, Cols. 5, 8.	Per Cent. of Exports to Imports.		Declared Values. Excess of Imports, Cols. 3, 6.
		Declared Values.	Less 5 per Cent.	Cor- rected Imports.	Declared Values.	Add 10 per Cent.	Cor- rected Exports.		Declared Values.	Cor- rected Values.	
		Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £		Per cent.	Per cent.	Mln. £
3	1877-75 '74-70	380	19	361	210	21	231	130	55	64	170
5		350	17	333	240	24	264	70	70	80	110
8		365	18	347	225	23	248	100	61	72	140
5	1869-65 '64-60 '59-56	286	14	272	181	19	200	72	63	70	105
5		235	11	224	140	14	154	70	59	70	95
4		175	8	167	121	12	133	34	69	80	54
14		234	12	222	150	15	165	58	66	73	85
8	Totals										
14	1877-70	2,920	144	2,776	1,800	180	1,980	800	61	72	1,120
14	'69-56	3,276	151	3,124	2,100	210	2,310	810	66	73	1,190
22	Totals	6,196	295	5,900	3,900	390	4,290	1,610	—	—	2,310
22	Avge.	262	13	268	177	18	195	73	63	72	105

Note.—The effect of this correction is for the twenty-two years to reduce the total apparent excess of Imports by 700 mln. £, that is from 2,310 (col. 12) to 1,610 (col. 9);—or in annual result from 282 to 268 imports;—and from 177 to 195 exports.

The effect of the corrections in this table will be seen from the following summary of the several periods of years :—

Here the declared value 1,826l. of this parcel of Manchester goods is 8 per cent. (153l.) under the actual cost or value when they land in India, and which cost or value plus profit India has to pay.

Next as regards imports, the merchant says, "I imported 260 chests of tea and declared the value 1,550l., that is because it was the laying down cost, or in other words the gross value; but I have had to pay dock rates, freight, marine and fire insurance, &c., which came to, say, about 15 per cent., upon that gross value, or say 225l., and this 225l. went to firms in this country. My declared value of 1,550l. was therefore say 225l. too high as regards the real claim of the foreigner upon the United Kingdom."

Summary of Excess of Imports (United Kingdom), Merchandise, according to "Declared" and Corrected Values. Average Annual Results. The Exports are British Produce only.

Number.	Periods of Years.	Declared Value. (A.)	Corrected Value. (B.)	(B) Less.
(8)	1877-75	Min. £. 170	Min. £. 130	Min. £. 40
(5)	'74-70	110	70	40
8		140	100	40
(5)	1869-65	105	72	33
(5)	'64-60	95	70	25
(4)	'59-56	54	34	20
14	Ann. Average....	85	60	25
22	Totals	2,310	1,610	700

Whether we take the declared values in A or the corrected results in B, there is equally a progressive rise in the *excess* of Imports from 1856 to 1877.

The corrected Column B, gives the total excess so rising in average annual figures, in the groups of years in a series, thus; in million £, 34, 70, 72, 70, 130,—Total 1,610 mln. £.

From this Total of 1,610 we may take away 100 for excess of imports of *bullion*, leaving 1,510 mln. £ as the excess of imports of merchandise; and when the whole subject is considered, the wonder will be not that in twenty-two years there has been a *total excess* of 1,510 mln. £ (or 73 millions per annum), but that it has not been greater.

Let us enumerate again the further deductions from the *corrected* imports, which we have no means of stating statistically, viz. :—

1. *Interest* due to United Kingdom from foreign and colonial countries for investments in foreign and colonial loans, companies and undertakings.
2. *Interest* and profits due to United Kingdom for capital advanced for trading purposes in foreign and colonial countries.
3. Advances of British *capital* repaid by, or recalled from, foreign and colonial countries.
4. *Private fortunes* amassed abroad by British and foreign subjects, and permanently transferred into United Kingdom.

These are all corrections which require to be made year by year, according to the particular circumstance of each year, and they are all exceedingly variable corrections. The two last are especially

variable, as influenced powerfully by such conditions as foreign wars, foreign politics, and foreign trade. My own belief is, that of the 130 million £ of excess of imports shown in the last three years, 1875-77, a large part arises from the recal by British holders of advances previously employed abroad, and of fortunes amassed abroad, both of them measures arising out of uncertainty and alarm connected with foreign politics, and out of the necessity of providing for losses on trade in this country.

As regards the fourth head, the transference home of Fortunes made abroad, I am satisfied that it is an item far larger than is generally supposed. Forty years ago it was pretty well ascertained that the fortunes of civil and military servants of the East India Company, and of merchants and others trading in India and China, annually transferred home, was not less than *six* millions sterling; and if six millions in 1838, what is it in 1878, when India has become only one of the regions of the earth in which British subjects accumulate fortunes? It appears to me to be not at all impossible that in 1875-77 these transfers of fortunes and advances may have been not less than 30 mln. £ per annum.

XV.—*Direct Evidence of Large Accumulations of Capital in United Kingdom, 1856-77.*

It may be reasonably said that if for the last twenty-two years there has been a clear excess of Imports into the United Kingdom of 70 mln. £ per annum, very distinct evidence should be afforded by other independent tests of a great growth of Income and of Capital within these islands.

There is no difficulty whatever in providing such independent evidence. The difficulty indeed is how to classify and order it in the fairest and most logical manner.

Mr. Giffen's paper on the accumulations of capital between 1865 and 1875, was read before the Society in January (1878) last, and is in the xli volume of the *Journal*. The result of that inquiry was to give 240 mln. £ *per annum*, or 2,400 mln. £ in the ten years, as a figure not beyond but within the truth.

In 1863 I contributed to the "*Economist*" two papers on the then rate of Accumulation, going back to 1854-55, and those papers will be found in the *Statistical Journal* for 1864, (vol. xxvii, p. 118).

The conclusion I arrived at was that between 1855 and 1863, the accumulations had been not less than 130 mln. £ *per annum*; and that in 1861-63 it was probable that the figures had risen to 180 mln. £ *per annum*.

Apart, however, from all computation of the increase of *Capital*, we have evidence of the most positive kind regarding the growth

of the annual Incomes returned by the public themselves to the Inland Revenue as liable to income tax. I say returned by the public themselves, and therefore in spite of all official vigilance, certain to be considerably within the actual facts; and as regards Schedule D, notoriously very much within those facts.

The following Table (XVI) gives the yearly increases from rents, dividends, profits, &c., assessed to income tax in the three intervals of 1854-55, 1866-67, and 1874-75. The year 1866-67 is chosen, because in that year mines, ironworks, &c., were transferred from Schedule A to Schedule D, to which, as being trading properties, they logically belong. For the earlier years 1854-55 only part of the details can be given, but the *totals* of the Income assessed are certain for the three years.

(XVI).—*Yearly Revenue from Property and Profits Assessed to Income Tax in United Kingdom in each of the Three Official Years ended 5th April, 1874-75,—1866-67,—and 1854-55.*

Income Tax Schedules.	1874-75.	1866-67.	1854-55.
	Mln. £	Mln. £	Mln. £
(A) Lands	66,9	62,7	(not given.)
Houses.....	94,6	72,2	"
Sundries	,9	2,	"
	162,4	136,9	125,0
(B) Occupation of land	66,7	56,4	49,4
	229,1	193,3	174,4
(C) Dividends, &c., in public } funds	424,	33,6	27,3
(D) Mines	14,1	5,6	(these details cannot be given before 1863.)
Ironworks	7,8	2,4	
Railways	27,5	18,9	
Canals	1,0	,8	
Gasworks.....	2,6	2,1	
Quarries	,9	,6	
Sundries	3,8	2,2	
	57,2	32,6	
Trades and professions	209,8	140,4	91,3
(E) Pensions and offices	32,5	23,7	15,3
	571,0	423,7	308,3
Increase { Total	147,3	115,4	
{ Per cent.	36 per cent.	37 per cent.	

Note.—From 5th April, 1866, the assessment of "Mines, Ironworks, &c.," was transferred from Schedule A to Schedule D. In 1854-55, therefore, "Mines, &c.," were in Schedule A.

Put into a short compass, the evidence of this table shows that between the following dates the *Income Tax Incomes* of the United Kingdom are represented by the following series:—

(XVIA).—*Income Tax Incomes of Years 1854-55,—'66-67,—and '74-75.*

Totals per annum	308	424	571	.....mln. £
Increase, gross	—	116	147	= 263 mln. £
„ per cent.	—	37	36	= 73 per cent.

The omissions from these official figures are very large. The exemptions of small incomes from the tax have been throughout the twenty years quite equal to all incomes of 150*l.* and under; and the amount of *Capital* from which a large part of these small incomes is derived is very large indeed.

A considerable part of the incomes from foreign and other investments also escape the tax.

It is very probable that if we added 10 per cent. to the official figures, we should not overrate the actual Income of the United Kingdom from Capital, or in other words (XVIA) would become (XVIB); thus:—

(XVIB).—*Amended Series of Taxable Incomes, 1854-55,—'66-67,—and '74-75.*

Totals per annum	340	468	628	.....mln. £
Increase, gross	—	126	162	= 288 mln. £
„ per cent.	—	37	36	= 73 per cent.

In all efforts to convert these increases of taxable incomes into sums representing *Capital Values*, the difficulty is to discover in so great a multitude and diversity of cases, the proper number of *years' purchase* to be applied to the long and bewildering list of categories and kinds of property. In 1863, after many trials, I adopted the compromise of twenty years' purchase all round. Mr. Giffen has been more minute, and has assigned more exact multipliers to different categories, and I think with considerable success. Still neither he nor I can do more than *approach* the truth.

The next Table (XVII) collates Mr. Giffen's results and my own:—

(XVII).—*United Kingdom. Estimate of Growth of Annual Incomes and of National Capital, as Indicated by Annual Rents, Profits, &c., Assessed to Income Tax. Three Periods, 1855, 1865, and 1875.*

1 Income Tax Schedules.	2 3 4 5 6 7 GIFFEN.						8 9 10 NEWMARCH.		
	1875.			1865.			1855.		
	Income Assessed.	Years' Purchase.	Computed Capital.	Income Assessed.	Years' Purchase.	Computed Capital.	Income Assessed.	Years' Purchase.	Computed Capital.
	Min. £	No.	Min. £	Min. £	No.	Min. £	Min. £	No.	Min. £
A.									
1. Lands, houses	162 { 15 } { 30 }		3,453	131 { 15 } { 30 }		2,904	125	20	2,500
B.									
2. Farmers' profits	67	10	667	56	10	620	50	—	1,000
C.									
3. Public funds, less national debt	21	25	520	8	25	210	20	—	400
D.									
4. Quarries, railways, canals, foreign and colonial investments	92 { 15 } { 25 }		1,475	46 { 15 } { 25 }		840	60	—	1,200
5. Trades and professions....	35	15	525	25	13	376	20	—	400
	377	17	6,640	288	18	4,960	275	20	5,500
6. Trades, &c. (D), omitted, say 20 per cent.	7	15	105	5	15	75	—	—	—
7. Income of non-income tax paying classes derived from capital	60	5	300	40	5	200	—	—	—
8. Foreign investments not in C and D	40	10	400	10	10	100	—	—	—
9. Furniture, pictures, &c., not yielding incomes	—	—	75	—	—	500	—	—	—
10. Government and local property	—	—	400	—	—	300	—	—	—
	107	—	1,905	55	—	1,175	—	—	—
	484	17½	8,546	321	19	6,115	275	20	5,500
1855 corrected to 17½ years' purchase	—	—	—	—	—	—	275	17½	4,812
Increases, 10 years.									
1875 over 1865	163	—	2,431	—	—	—	—	—	—
'65 " '55	—	—	—	46	—	1,303	—	—	—
Increase per annum.									
1875 over 1865	16	—	243	—	—	—	—	—	—
'65 " '55	—	—	—	4½	—	180	—	—	—

Note.—In Item 5 (Trades) the 35 mln. £ of income is only one-fifth of the 175 mln. £ assessed under Schedule D, as it is estimated that one-fifth only of trading income arises from capital. For the sake of uniformity, I adopt for 1855 the seventeen and a-half years' purchase employed by Mr. Giffen for 1865 and '75.

Applying to this table as to (XVI) the method of Series, we have as follows :—

(XVIIA).—*Capital Values, United Kingdom, Derived from Taxable Incomes, 1854-55,—1866-67,—and 1874-74.*

Totals of Capital	4,812	6,125	8,546	.....mln. £
Increase, gross	—	1,303	2,431	= 3,734 „
„ per cent.....	—	27	40	= 67 per cent.
„ per annum	—	180	248	= 378 mln. £

We may well ask where this increase of 3,734 mln. £ of capital in course of the last twenty years has gone to ?

In 1863 I set out the following seven categories of purposes to which the then accumulations of say 130 mln. £ *per annum* had been and were being applied, and I do not know that I can add to them :—

“ 1. Improvement and extension of the cultivation of the Soil—drainage, improved machines, buildings, and appliances.

“ 2. Improvement and increase of Dwellings—including expenditure for sanitary purposes.

“ 3. Improvement and Multiplication of Manufactories—machines, tools, workshops.

“ 4. Extension of Public works and Public buildings, railways, docks, bridges, telegraphs, roads, churches, hospitals, colleges, asylums.

“ 5. Increase of Trading capital, ships, stocks of goods at home and abroad, trading advances in colonies and foreign countries.

“ 6. Foreign and colonial Investments, loans, railways, public works, &c.

“ 7. Increase of Furniture, wearing apparel, ornaments, carriages, jewels, works of art, and objects of taste and luxury.”

XVI.—*Statement of Principal Causes of the Commercial Distress in Europe and the United States, 1873-78.*

We have now seen by the aid of independent evidence, that there is abundant means of proving that the excess of 70 mln. £ *per annum* of Imports into the United Kingdom during the last twenty years, is a phenomenon in every way consistent with the positively ascertained growth of income and capital values within the United Kingdom during the same period of time ; that in point of fact, the growth of the Incomes can only be explained by means of the excess of the Imports ; and the excess of the imports can only be explained by being able to show that during each of the twenty years there have been vast accumulations of Capital available for investment, and actually invested in loans, advances, credits, and ventures in foreign and colonial countries.

But admitting all this, there still remains the practical difficulty of the following question, viz.,

How does it happen that in this country there has been a state

of commercial and industrial distress during the four and a-half years which have elapsed since the close of 1873;—and that a condition of things the same in character but worse in degree, has prevailed during the same period in Germany, Austria, France, the United States and Canada?

I reply to this natural question by enumerating under the following eight heads the causes which afford an explanation, viz.:—

“ 1. The first and the most powerful of these causes was the Franco-German war (August, 1870—April, 1871), the payment of the indemnity of 220 millions sterling by France to Germany, and the entrance of Austria, Hungary and Italy upon a newer, freer and more enterprising national life. The suspension for a year of a large part of the industrial production of the belligerent countries brought them impetuously into the markets of the world—and especially into the English market—as soon as peace was assured; creating a demand greatly beyond the capacity of the then existing means of supply available at the moment. Hence arose the impetuosity with which in 1871-72 demand urged on production, especially in the instrumental articles of coal and iron.

“ 2. The mania in the United States for building railways (1868-73), and the consequent large transfers of native and foreign capital from floating securities into fixed investments, operated in the same way, and in the same direction, as the demand from the War regions in central Europe; and in the United States was aggravated by a bad paper currency, by bad protectionist laws, and by abuses of the most flagrant and scandalous kind in the administration of the entire railway system. It is also to be borne in mind that both in North America and central Europe, the prevalence of devastating wars since 1860 has destroyed and prevented the usual accumulations of capital arising from successful enterprise and frugality, and from the increase of skill and diligence in the great bulk of the people.

“ 3. During the same period (1868-73), Russia strained all its resources and all its credit in pursuit of a similar policy of railway, road and navigation extension.

“ 4. The opening of the Suez Canal at the end of 1869 created, during 1870-73, an urgent demand for a large fleet of steam vessels adapted to the new Indian route; and what is more, so altered and affected many of the existing modes and channels of business, as to create mischief and confusion among the parties engaged in them. These disarrangements of former channels and methods of commerce, have been greatly intensified by the completion since 1868 of telegraphic systems between all parts of the world, not excluding China, Australia, and both sides of South America.

“ 5. The rapid rise of prices and wages (1871-73) threw large systems of production entirely off their balance. More expenditure and less work took the place of frugality and diligence, and the acquirement of riches seemed to have become all at once so easy that the old virtues of diligence, skill, and patience could be laid aside both by men and masters.

“ 6. During the three excited or prosperity years, 1871-73, there was a rapid rise in this country and over Central Europe and North America in the *Cost of Production*, occasioned by the less amount of work given by the operative classes for augmented wages; by the shortened hours of labour and the consequent diminished productiveness of all fixed machinery and plant, and by the adoption of new laws for regulating and in effect for lessening labour, as, for example, the Mines and Workshops Regulation Acts in this country. For three years, 1871-73 the industrial world went on holiday, less and worse work was given for higher and higher wages; and then in every country there came a collapse, because the laws of nature could be no longer violated by a wholesale and consentaneous neglect of diligence, frugality, and intelligent labour zealously applied.

“ 7. In the United Kingdom there has been, since 1873, three years most unfavourable to almost all the classes engaged in the greatest of all our domestic

industries—Agriculture. Grain, root, and hay crops have been bad. Cattle disease has not only prevented profits, but has destroyed very large amounts of capital; and the result is a degree of distress throughout all the farming interest greater than has been known for a long period. As a consequence of these calamities, the price of bread and potatoes to the working classes has been, during 1873-77, not less than 12 or 14 per cent. (that is, say 3s. in every 20s. of expenditure in these articles) higher than during 1869-71, and remembering that it is the extra shillings set free by the lower cost of weekly living, which, diffused among 25 millions of persons, constitutes the effective demand for the great bulk of manufactured articles, it is not difficult to trace the cause of a large part of the distress in the industrial towns and districts.

"8. Since the early part of 1876, the entire commerce of the world has been and is held in suspense by apprehensions excited by the political events of the war in South Eastern Europe; and the difficulties still expected to arise out of the defeat of Turkey; and to this special cause of disturbed industry must be added the famine of 1877 in a large part of India."

The countries in which the commercial distress has been and is most severe is the United States and Germany, both of them countries where Protection is in the greatest force. In the United States a powerful party has arisen who are seeking to abate the distress by procuring a reduction of the tariff and the enlargement of freedom in all branches of industry, and Congress seems likely to give effect to their views.

In no sense can it be urged, in the face of the eight causes just enumerated, that Free Trade has had any share in producing the distress of 1873-77. In this country it has been largely a mitigatory force, since it has averted by free imports a great part of the loss and misery inseparable from a succession of seasons of scarcity.

It will be well to give a few illustrations of the distress which prevails in the United States and in Germany.

As regards the collapse in American railways, the Philadelphia correspondent of the "Times" writes in January, 1878, as follows:—

"The year 1877 will be chiefly remembered in the United States for its wide-spread commercial and joint stock company misfortunes. The frauds, shrinkage, and errors of previous years have resulted in a series of failures so numerous and so sweeping, as to arrest public attention almost to the exclusion of all other topics. Banks, savings institutions, trust companies, insurance companies, and other joint stock enterprises have failed by the score, and there has been a general weeding out of inferior and rotten corporations, choking up the financial atmosphere, and removing what may be called the *débris* of the panic of 1873.

"Misfortune now especially prevails with the railways, and the 'Chicago Age' gives a tabular list, showing that during the two years 1876-77, *one-tenth of the entire railway system of the United States* has been sold under foreclosure, while proceedings are pending in more than a second tenth, so that not less than *one-fifth* part of all railways in the United States are at this moment either actually under foreclosure, or far advanced towards that catastrophe. In 1876-77 there were sold under foreclosure eighty-four railways, operating 7,721 miles, with capital and debts of 83 mln. £. In 1877 foreclosure proceedings were commenced against forty-four new railways, and sales were ordered in the case of sixteen others. These sixty lines represent 115 mln. £, which added to the 84 mln. £, makes a total of 199 mln. £, most of it hopelessly lost.

"As regards the destitute population, and owing to vagrancy by the absence of employment, the Honourable Mr. Blair, formerly a member of Mr. Lincoln's cabinet, declared from the chair of the Maryland Convention, in January, 1878, convened to consider the tramp crisis, that 'it is a lamentable fact that 1,200,000 able-bodied men are out of employment, numbers of whom are roaming about the country, a nuisance and a terror to the resident population.'"

As relates to Germany, the following statistics are from a careful analysis made early in 1877 of the condition of eighty joint stock companies established in different parts of Germany, in 1871-73, for trading and manufacturing purposes:—

Dividends.	1875.	1874.
Nil	50 Cos.	34 Cos.
Under 5 per cent.	11 "	19 "
5 and under 10 per cent.	15 "	13 "
10 per cent. and over.....	4 "	14 "
	80 Cos.	80 Cos.

On 1st January, 1877, the market value of the shares of these eighty companies stood as follows:—

Discount up to 20 per cent.	23 Cos.
" 20 " 50 "	27 "
" 50 " 100 "	30 "
	<u>80</u> "

XVII.—Effects on Commerce and Prices of the Gold Discoveries of 1848-51.—Comparison of Prices in 1831-45, and in 1870-77.

This investigation cannot be closed without some reference to the effects of the large and continuous supplies of Gold from California and Australia, which began thirty years ago in 1848-49.*

* The following figures indicate, at five year intervals, the progress of the Gold supplies from the *old* source (Russia), and the *new* sources (United States and Australia) since 1848 (in mln. £).

Russia.	Single Years.	United States.	Australia.	Together.	Grand Total.
3,6	1849	1,8	—	1,8	5,4
2,8	'55	14,7	12,7	27,4	30,2
3,1	'60	3,8	11,8	15,6	18,7
3,2	'65	5,2	11,8	17,0	20,2
4,4	'70	5,3	11,7	17,0	21,4
4,0	'75	6,8	9,5	16,3	20,3
4,0	'76	8,4	8,8	17,2	21,2
94, {	Totals, 28 yrs. 1849-76	206, }	288,	494,	588,
3,4 {	Ann. average 28 years	7,4 }	10,3	17,7	21,

Prior to 1849 the annual supplies of gold available for all the purposes of coinage, bullion reserves, and commerce, had been about 4 mln. £, an amount barely sufficient to meet the wear and tear of the gold coins in circulation. In 1850 the supply was raised to 9 millions; in 1851 to 14 millions; in 1852 to 27 millions; and in 1856 to 32 mln. £; a revolution far surpassing any economic change within record. The figures below show that there has been a gradual decline to a supply of 21 mln. £ for about the last sixteen years, say 1861-77—that is to say, the *Pre-discovery* supply of 4 mln. £ per annum, has been raised to a *Post-discovery* supply for the ten years 1851-60, of about 28 mln. £; and for the following sixteen years 1861-76 of about 21 mln. £ per annum.

The present rising generation can form but a faint idea of the intense interest excited thirty years ago by the discoveries of 1848 in California: and still more by the far richer deposits found in Australia in 1851. Careful observers had begun to recognise the fact, of which there is now no question, viz.:—that for about twenty years prior to 1848 the annual supplies of gold had been insufficient to meet the wear and tear of the coin in use: the requirements of the arts: and the needs of enlarging industry, commerce and population. There had been a slow, but steady and progressive, tendency towards lower prices: and therefore towards a discouragement of enterprises in which lapse of time and the state of distant markets had to be considered.

The New Gold dissipated all these discouragements. I well remember how vivid were the hopes and fears excited, how fierce and wild the theories started, and how earnest the controversies carried on. The least of the events most confidently looked for was a rapid and wonderful rise of nearly all prices, and a rapid and wonderful fall of the rate of interest; so that the persons living on fixed incomes and the interest of capital, had the most confident assurance given to them that anyhow their destruction was certain, inasmuch as what little margin the rise of prices might possibly leave them on one side, would most assuredly disappear by the fall in the rate of interest on the other.

I was one of the earliest of the disputants, and early in 1853 I collected the facts then accessible, in a stout pamphlet called “The New Supplies of Gold,” written chiefly for the purpose of showing that most of the extravagant anticipations were erroneous, and that after a short time the extension of commerce, the stimulus given to invention and enterprise by fresh markets, and the consequent infinite multiplication of transactions far exceeding any previous experience, would prevent before long any undue rise of prices by mere force of increased quantity on the side of the new gold:—that most emphatically the end to be feared was not that the new

supplies of gold would continue, but that by possibility they might fall away or cease :—and in short, that the world ought to rejoice if a new gold field could be discovered every few years.

These opinions found few supporters, and my facts were disputed, and my references condemned. I had, however, one supporter whose judgment represented a great power—I mean Thomas Tooke—and in the fifth and sixth volumes of the “History of Prices,” which bore our joint names and were published, early in 1857, the same argument and the same views were elaborated at greater length, and were reaffirmed with greater confidence; and to these volumes I refer any person who may be curious to trace the history of the controversy.

I limit myself to quoting here the two final conclusions (16th and 17th) of the summary of the whole inquiry :—

“That set in motion and sustained by the production year by year of large quantities of new gold, there is at work a vast and increasing number of causes, all conducing to augment the real wealth and resources of the world, all conducing to stimulate and foster trade, enterprise, discovery, and production, and therefore, all conducing with greater and greater force to *neutralise by extensions of the surface to be covered, and by multiplying indefinitely the number and magnitude of the dealings to be carried on, the à priori tendency of an increase of metallic money to raise prices by mere force of enlarged volume.*

“And, finally, that at the close of the first nine years, during which this great economic revolution has steadily rolled on, but each year with a broader and deeper current, the results which stand forth in the most positive form, and produce upon the mind the most distinct impressions, are results which point to the creation of a wider and richer field for the exercise of labour and skill, as the earliest and most certain of the changes which will flow from the influx of the new gold.

“Already the boundaries within which capital and enterprise can be applied, with the assurance and the knowledge alone compatible with durable success, have been extended over limits which ten, or even five years ago, would have been regarded as unattainable.

“There have come into play influences of which it seems to be the special mission to contribute, by the aid of these great Gold discoveries, and by the aid of concurrent advances of knowledge, to the removal or mitigation of many chronic evils against which successive generations have striven almost in vain.

“And on solid grounds of fact and reasoning, we are justified in concluding that during the last nine years there have been impressed upon every part of the social machinery depending on economic conditions, an impulse already manifest in a quickened rate of progress, and still more manifest in accelerating (but with equal and steady steps) the success of every sound scheme for the advancement of skill and labour in all countries, but pre-eminently for the advancement of skill and labour within that country which is our own.” (Tooke and Newmarch, “History of Prices,” vols. v and vi (1848-57), published Feb., 1857).*

* I may say here that prior to Mr. Tooke's death in 1858, he transferred to me his books and papers connected with the six volumes of the “History of Prices,” including an interleaved and corrected copy of the first four volumes; and left with me a request that at some fitting time a New and Revised Edition of the entire six volumes should be undertaken by me, and carried down to whatever may be the date of the publication. Of this request I need hardly say that I have not been and am not unmindful; and I now look forward to being able at no distant period to fulfil the wishes of one of the best and wisest of men. The existing edition

Among those who have most distinguished themselves by their investigations of the effect of the New Gold on Prices, has from the first been Professor Jevons. His official residence in Australia in the service of the mint at Sydney, and his great scientific acquirements, give him high qualifications for the task. Mr. Jevons did not take the same view of the phenomena as myself.* He held that prices had been powerfully affected in the direction of advance by the new gold. But it is no part of my present purpose to resume the argument. The further evidence furnished by the lapse of nearly thirty years, enables us both to judge the question on sure grounds of Fact; and it is on these grounds solely that I now insert the following Table (XIX), which places in juxtaposition in the shortest form the figures which represent Mr. Jevons's statement of prices in the fifteen *Pre-discovery* years 1831-45, and my figures which represent the prices of the eight *Post-discovery* years 1870-77—that is eight years which *commence* when twenty-one years (1859-70) had elapsed since the discoveries.

For the method of arriving at the figures in the table, I refer to Appendices G and H.

(XIX).—*Wholesale Prices in London at Two Periods, viz. (a) the Fifteen Years 1831-45, BEFORE the Gold Discoveries, as given by Professor Jevons; and (b) the Eight Years 1870-77, say Twenty-One Years, AFTER the Gold Discoveries. Full Details given in Appendices G, H, and HA.*

1 Commodities.	2 A. 1831-45 (Fifteen Years), Jevons.	3 B. 1870-77 (Eight Years), Newmarch.	4 5 B.	
			Less.	More.
I.				
1. All the articles observed	115	125	—	10
II.				
2. Cotton, raw	151	127	24	—
3. Silk, flax, wool.....	130	127	3	—
III.				
4. Oils, timber, tallow, } leather	115	120	—	5
5. Copper, lead, tin, iron....	108	117	—	9
IV.				
6. Coffee, sugar, tea.....	135	115	20	—
V.				
7. Wheat	106	97	—	9

of the "History" has been long out of print, and when it does appear sells for a high price.

* Mr. Jevons's chief publications have been as follows:—

A Serious Fall in the Value of Gold Ascertained, and its Social Effects set

I may fairly point out that the differences in cols. 4 and 5, do anything but indicate a considerable or even a marked advance in prices in 1870-77, as compared with 1831-45. Indeed allowing for the almost constant prevalence of Wars on the largest scale in all parts of the world during the period 1853-77:—and the almost total absence of war of any kind during the period 1831-45, the apparent rise of 10 per cent. in general prices may be fully accounted for by reasons of interrupted supply and enlarged demand of the commodities themselves.

I leave the subject with the single remark that the course of events has amply vindicated the opinion I was almost alone in expressing in 1853.

XVIII.—*Verification of Free Trade Principles.*

We are now in a position to draw this inquiry to a close.

We have examined in detail, for the last twenty-two years (1856-77), the increase, distribution, and character of the greatest Foreign Trade which ever existed in the world—of a foreign trade compared with which in extent and variety the trade of scarcely any two or three of the greatest contemporary States fails to supply a parallel.

We have seen that the *Exports* from the United Kingdom, which stood at 58 millions (or 2*l.* 3*s.* per head) when Sir Robert Peel left office in 1846, have gone on year by year till they are now nearly four times as great, viz., 210 millions (or 6*l.* 10*s.* per head); and the *Imports* have risen from 70 millions to 380 millions, or more than five-fold.

And with these vast results before us we can look back with wonder and gratitude at the courage of the great statesman, who, in a time early and feeble by comparison with our own, had the sagacity and boldness to commit this country to a system of Free Trade policy.

It was in January, 1846, that Sir Robert Peel declared in the House of Commons, “I freely avow to you that in making this “great reduction upon the import of articles, the produce and “manufacture of *foreign countries*, I have no guarantee to give you “that other countries will follow your example, and I give you the “full benefit of that argument. . . . You may therefore say, in “opposition to the present plan, ‘What is all this superfluous forth. With Two Diagrams. By W. Stanley Jevons, M.A., formerly of the Sydney Royal Mint. London. (Stanford.) 1863.

On the Variation of Prices and the Value of the Currency since 1782. By W. Stanley Jevons, &c. *Journal of the Statistical Society of London*, vol. xxviii, p. 294.

Letter on the Value of Gold. *Economist*, 8th May, 1869. Reprinted in the *Statistical Journal*, vol. xxxii, p. 445.

“ ‘liberality for?’ . . . It is a fact that other countries have not followed our example, and have levied higher duties in some cases upon our goods. But what has been the result upon the amount of your exports? Why, that you have defied the regulations of those countries, and that your export trade is greatly increased.”

We can now repeat, in these very words, that during the thirty-two years which have elapsed since the utterance of them, we have systematically defied the regulations of foreign countries with so much success, that the Exports which were 58 millions when the defiance was given, have risen to 210 millions by persevering in it.

In July, 1849, Sir Robert Peel, in the last great speech which he delivered on the subject, still held the same language, and left to us as his final testimony this pregnant sentence: “I contest the assumption that you cannot fight hostile tariffs by free imports. I so totally dissent from that assumption, that I maintain that the best way to compete with hostile tariffs is to encourage free imports.” And now, at the end of a generation, by following faithfully this advice, we have seen our Imports rise fivefold, from 70 millions to 380 millions, and the wealth of the country accumulate so greatly that the figures which express its growth seem to be fabulous.

But if hard actual results have vindicated the statesman and politician, how much more have they vindicated the Philosophers who, as the result of patient thought and research, were able to teach that statesman his principles and furnish him with his arguments.

We may now review, by the light of the last twenty-two years, a few of the passages from Mr. Mill (repeating Adam Smith), with which I opened this paper.

“The advantages,” says Mill, “of foreign commerce consist in a more efficient employment of the productive forces of the world,”—and a very superficial comparison of the condition of the people of these islands in 1846 and 1878 is the fitting commentary.

“The only direct advantage of foreign commerce consists in the Imports. A country obtains things which either (1) it could not have produced at all, or (2) which it must have produced at a greater expense of capital and labour than the cost of the things it exports to pay for them. . . . Commerce is virtually a mode of cheapening production, and in all such cases the Consumer is the person ultimately benefited. The merchant or dealer in the end is sure to get his profit, whether the buyer obtains much or little for his money.”

We may safely leave to any adventurous Protectionist critic the task of establishing, if he can, any disagreements between these principles and the long series of Facts set forth in this paper.

The truth is that even now, after the astonishing progress of the

last thirty years, the world is only beginning to understand the advantages of a Thorough Free Trade among civilised nations. I have dwelt here on exchanges of merchandise:—and the exchange of merchandise must always be the ultimate aim and business of trade. But as freedom of intercourse becomes enlarged and assured, the transit of merchandise and bullion will be only one of the modes of dealing, and one of the means of settling international claims.

There is already a large and increasing category of Securities to Bearer, the transfer of which from one country to another in the course of a few hours, is as good and effective a payment or set off as the arrival of a fleet or the transmission of millions of treasure.

In like manner orders by Electric cable to give or receive securities or bank notes or bullion, are as effective as used formerly to be a long process of drawing, accepting and discounting bills of exchange. The indirect and “triangular” trades also are becoming as important as the direct ones; and go very far indeed to neutralise many of the evils of protective tariffs. The United States, for example, cannot help taking tea and silk from China; and cannot help China refusing to take tobacco and raw cotton in exchange. Hence the United States cannot help sending the tobacco and raw cotton to England, and using the proceeds in the purchase of English credits available to discharge the China debt. In like manner it is every day more true that England pays for a large part of its Imports not directly to the country A from whence they come, but indirectly to other countries to which A happens to be in debt.

The true nature of Foreign Trade is, that the nations of the world should resemble not merely a single country, but a large town within that country, throughout the streets, lanes, and alleys of which there shall be kept up as constant, rapid, and easy a current of dealings as prevails among the natives of the town itself.

The ideal of the Philosophers is the true practical wisdom in all trades, in all times and places, viz. :—

“(1) A more efficient employment of the Productive forces of “the world.

“(2) A constant Cheapening of production;” and

“(3) A constant benefiting of the Consumer.”

XIX.—*Conclusions.*

I submit the following conclusions as justified by the evidence, statistical and general, of this Inquiry :—

1. That in all considerable countries, and especially in the United Kingdom, with its constant large surplus of saved or accumulated Capital, it is a wholesome and natural state of

things in the Foreign Trade, that the Imports of merchandise and bullion should exceed the Exports according to the declared values at the ports of arrival and departure:—and for two chief reasons, viz.: First because both the Imports require to be reduced, and the Exports to be increased for freights, charges, profits, &c., which do not and cannot appear in the declared values; and second, because in nearly all countries, but especially in the United Kingdom, there are large claims on foreign and colonial countries for Interest on foreign and colonial loans, advances and credits: for profits on trading enterprises carried on abroad: and for fortunes amassed abroad and transferred to the home country.

2. That in the case of the United Kingdom, the Imports and Exports even when corrected for freight and charges, have shown a large and increasing *excess of imports* for the last thirty years; an excess which has been perfectly consistent with and has contributed powerfully to a rapid increase of accumulated Capital;—and an excess only to be explained by the natural growth of mercantile demands on foreign and colonial countries, for interest, dividends, and profits on money advanced to them.
3. That in the very marked excess of Imports appearing during the last three years, 1875-77, there is not discernible any fact at variance with the explanations now given.
4. That when the Foreign Trade of the United Kingdom since 1855 is analysed, more particularly as regards the character of the *Imports* (that is to say, whether raw materials or articles of luxury);—and as regards the geographical distribution of the *Exports* (that is to say, whether to countries maintaining tariffs hostile to England), it is found that Hostile Tariffs have not on the whole lessened the volume of the British Export trade, taking into account the facilities which exist for discharging balances due to Non-free-trade countries, by exports to third or fourth countries, of which the Non-free-trade places are creditors.
5. That tried by every Statistical test, the experience and

example of the United Kingdom during the last Thirty years, prove in the most exhaustive manner that the rapid extension of the Foreign Trade, the marked growth of incomes and profits at home—and the growth quite as marked of accumulated capital—have accompanied and have been, in a large degree, produced by steady adherence to the free trade maxims of—

- (1) Cultivating the imports, and leaving the exports to cultivate themselves ;
 - (2) Regarding the benefit of the Consumer as the paramount object to be attained, and
 - (3) Considering that the cheapness of production, and the development of the productive forces of the world are the most powerful means for increasing the comfort and prosperity of the great body of the people of all civilised States, and of preventing wars and reducing armaments.
6. That while it is true that the sustained large annual supplies of Gold from the new mines discovered in 1848-51, have contributed in the most powerful degree to stimulate and sustain Production, it appears that chiefly in consequence of the vast extension in the number and magnitude of transactions to be effected, the new gold has not raised general wholesale Prices at the present time more than a small percentage above the level which prevailed for fifteen or twenty years prior to 1848.
 7. That regarding the whole case as now presented, beginning with the statement of general principles :—then confirming those principles by the acceptance and adoption of them by statesmen of the greatest experience, and acting under the highest responsibilities of office :—and in the third place establishing, by the testimony of official Facts extending over more than thirty years, the striking and uniform fulfilment of all the predictions of the philosophers and all the expectations of the statesman, amounts to a demonstration exhaustive and complete in every part.

APPENDICES.

- A.—Declared Values of Merchandise (ex-Bullion) at Ports of Departure and Arrival, Twenty Years 1856-77, "Imports into," and "Exports from," United Kingdom to Foreign Countries, Arranged in Tariff Groups, beginning with Countries (A) having Tariffs most Hostile to the United Kingdom. The "Exports to" are British Produce and Manufactures only. An Abstract of this larger Table is given in Table (VIII). The Details of the Tariff Groups is given in text, p. 200.
- B.—"Imports into" United Kingdom; Declared Values of Merchandise (ex-bullion), at Ports of Arrival; Twenty-Two Years, 1856-77, Arranged in Classes of Imports, beginning with (1) the most important.
- C.—"Exports from" United Kingdom, British Produce and Manufactures; Declared Values at Port of Shipment,—Twenty-Two Years, 1856-77, arranged in Divisions of Exports, beginning (a) with the most important.
- D.—The Five Tariff Groups of Countries, 1877-56, arranged—(1) According to the Percentage of "Exports to," of "Imports from;"—(2) According to the Percentage of "Imports from," of "Total Imports from;"—and (3) According to Percentage of "Exports to" of "Total Exports to."
- E.—Supplemental Imports, Single Years, 1876-66-56,—Details of Leading Items in—(a) Remainder of Enumerated Imports; and (b) Unenumerated Exports, as given in Official Returns (see Tables B and C), from Materials supplied by Mr. Giffen.
- F.—Supplemental Exports, Single Years, 1876-66-56.—Details of Leading Items in (a) "Remainder of Enumerated" Exports; and (b) "Unenumerated" Exports, as given in Official Returns (see Tables B and C)—from Materials supplied by Mr. Giffen.
- G.—Wholesale Prices in London, Six Years 1845-50—and Twenty-seven Years 1851-77.
- H.—Wholesale Prices in London, in Two Divisions, viz. (1) Professor Jevons (Twenty Years) 1831-50; (2) Mr. Newmarch (Thirty-three Years) 1845-77, stated in the Average Annual Percentage Index Numbers of Groups of Years, and adopting in each case the Prices for 1846-50 (Col. 7) as the Datum Line of 100.
- HA.—Wholesale Prices in London (Twenty Years) 1831-50, the Actual Percentage Numbers as given in Professor Jevons' Paper in *Statistical Journal* (vol. xxviii), 1865.
- I.—Examples of three of the Abstract Tables of Imports, Exports, &c., commenced in *Statistical Journal* 1857, and referred to in Section IV of preceding Paper.
- K.—Distress and Socialism in Germany 1874-78.
- L.—Negotiations concerning Commercial Treaties, 1860-78.
- M.—Protective Duties in United States.

APPENDIX.

(A).—*Declared Values of Merchandise (ex-Bullion) at Ports of Departure and Arrival, Foreign Countries, Arranged in Tariff Groups, beginning with Countries (A) having Manufactures only. An Abstract of this larger Table is given in Table (D). The*

[The figures below are in mil. £, thus

Num- ber.	Foreign Countries in Tariff Groups.	1877.		1876.		1875.		1874.		1873.		1872.	
		I.	II.	I.	II.	I.	II.	I.	II.	I.	II.	I.	II.
(A.)													
1	North Europe....	36,5	—	32,4	—	33,8	—	36,	—	35,5	—	36,9	—
		—	10,2	—	12,6	—	14,9	—	16,7	—	16,8	—	12,1
2	Central „	59,1	—	51,6	—	51,4	—	49,3	—	46,3	—	45,5	—
		—	34,5	—	37,7	—	42,2	—	45,	—	51,1	—	54,
3	Western „	60,8	—	58,2	—	60,8	—	60,3	—	59,4	—	56,2	—
		—	21,3	—	23,8	—	21,7	—	24,8	—	25,8	—	24,8
4	South „	8,3	—	7,	—	7,9	—	6,1	—	6,7	—	7,3	—
		—	9,	—	9,2	—	9,3	—	9,3	—	10,9	—	9,9
		165,	—	149,	—	154,	—	151,	—	148,	—	146,	—
		—	75,	—	83,	—	88,	—	95,	—	104,	—	100,
(B.)													
5	Levant.....	18,3	—	20,	—	17,9	—	17,	—	20,9	—	22,9	—
		—	8,1	—	9,2	—	9,9	—	11,9	—	15,	—	15,7
6	North Africa	1,9	—	1,5	—	1,6	—	1,5	—	1,6	—	11,1	—
		—	7	—	1,	—	1,	—	1,	—	4	—	4
7	West „	1,5	—	1,5	—	1,7	—	1,9	—	1,9	—	2,	—
		—	1,2	—	1,	—	1,	—	1,	—	1,1	—	1,1
8	East „	5	—	4	—	5	—	4	—	1	—	1	—
		—	4	—	4,	—	4	—	4	—	3	—	3
9	Indian Seas.....	3,7	—	3,1	—	3,1	—	2,9	—	2,	—	2,3	—
		—	3,4	—	2,4	—	2,7	—	1,7	—	1,2	—	1,1
10	South Sea	1	—	1	—	1	—	—	—	—	—	—	—
		—	1	—	—	—	—	—	—	—	—	—	—
		26,	—	25,	—	25,	—	24,	—	27,	—	27,	—
		—	14,	—	13,	—	15,	—	16,	—	18,	—	19,
(C.)													
11	China and Japan	16,1	—	17,	—	15,2	—	12,5	—	13,9	—	14,6	—
		—	10,1	—	9,7	—	11,	—	9,7	—	10,	—	11,5
12	British India	38,4	—	35,8	—	38,	—	37,5	—	37,7	—	40,7	—
		—	28,7	—	25,5	—	28,3	—	27,	—	24,6	—	21,9
13	Mauritius	1,9	—	9	—	8,	—	1,	—	1,3	—	1,5	—
		—	5	—	4	—	3	—	1,	—	6	—	6
14	Cape and Natal	4,3	—	4,2	—	4,5	—	4,2	—	4,1	—	3,7	—
		—	4,1	—	4,4	—	4,9	—	3,4	—	4,3	—	3,7
		61,	—	58,	—	58,	—	55,	—	57,	—	61,	—
		—	44,	—	40,	—	45,	—	42,	—	39,	—	38,

APPENDIX.

Twenty Years 1858-77, "Imports into," and "Exports from," United Kingdom to Tariffs most Hostile to the United Kingdom. The "Exports to" are BRITISH Produce and Details of the Tariff Groups is given in text, p. 209.

36,5 = 36,500,000*l.*; and ,5 = 500,000*l.*

1871.		1870.		1869.		1868.		1867.		1866.		1865.		Num- ber.
L.	£.	L.	£.	L.	£.	L.	£.	L.	£.	L.	£.	L.	£.	
33,7	—	32,3	—	25,3	—	28,7	—	31,3	—	28,4	—	26,4	—	1
—	10,5	—	11,	—	9,6	—	7,0	—	6,7	—	7,8	—	5,9	2
46,9	—	41,	—	40,5	—	37,8	—	37,3	—	38,	—	35,4	—	3
—	47,8	—	36,	—	37,6	—	36,3	—	32,8	—	26,	—	28,7	4
42,4	—	47,5	—	43,5	—	44,4	—	43,1	—	46,	—	39,6	—	5
—	24,3	—	17,3	—	16,5	—	15,5	—	17,5	—	17,4	—	14,8	6
8,	—	6,3	—	8,	—	7,3	—	5,6	—	6,2	—	4,8	—	7
—	9,3	—	8,9	—	9,	—	7,6	—	7,3	—	8,2	—	7,9	8
131,	—	127,	—	117,	—	118,	—	117,	—	118,	—	106,	—	9
—	92,	—	73,	—	75,	—	66,	—	64,	—	59,	—	57,	10
24,4	—	21,8	—	25,9	—	25,2	—	20,3	—	21,3	—	27,6	—	11
—	13,4	—	16,4	—	15,8	—	14,2	—	15,3	—	15,7	—	13,1	12
1,	—	,6	—	5,	—	,4	—	,3	—	,4	—	,5	—	13
—	,4	—	,4	—	,3	—	,3	—	,3	—	,3	—	,4	14
1,9	—	1,8	—	1,6	—	1,9	—	1,5	—	1,5	—	1,4	—	15
—	1,	—	1,	—	,8	—	,9	—	,8	—	,6	—	,6	16
,2	—	,8	—	,1	—	—	—	—	—	,1	—	,1	—	17
—	,1	—	2,	—	,2	—	,1	—	,1	—	,2	—	,1	18
2,	—	1,8	—	2,2	—	—	—	,8	—	1,3	—	1,4	—	19
—	1,3	—	1,7	—	1,5	2,2	1,3	—	2,4	—	2,6	—	1,9	20
—	—	,1	—	—	—	—	—	—	—	—	—	—	—	21
—	—	—	—	—	—	—	—	—	—	—	—	—	—	22
29,	—	27,	—	30,	—	30,	—	23,	—	24,	—	31,	—	23
—	16,	—	20,	—	18,	—	17,	—	19,	—	19,	—	16,	24
12,	—	10,	—	10,3	—	11,9	—	9,	—	11,3	—	12,	—	25
—	11,	—	11,2	—	10,4	—	9,6	—	11,3	—	9,	—	6,7	26
37,9	—	31,1	—	39,3	—	35,8	—	30,1	—	41,7	—	43,2	—	27
—	20,9	—	22,5	—	20,1	—	23,6	—	24,7	—	23,	—	20,4	28
8,	—	,9	—	,7	—	1,	—	,9	—	1,3	—	1,2	—	29
—	5,	—	,5	—	,4	—	,4	—	,4	—	,6	—	,6	30
2,9	—	2,9	—	2,7	—	2,7	—	2,7	—	2,7	—	2,5	—	31
—	2,2	—	—	—	1,6	—	1,6	—	1,9	—	1,4	—	1,7	32
53,	—	45,	—	53,	—	57,	—	43,	—	57,	—	59,	—	33
—	35,	—	36,	—	32,	—	35,	—	38,	—	34,	—	30,	34

(A Contd.)—Declared Values of Merchandise

Num- ber.	Foreign Countries in Tariff Groups.	1877.		1876.		1875.		1874.		1873.		1872.	
		I.	E.	I.	E.	I.	E.	I.	E.	I.	E.	I.	E.
	(D.)												
15	United States....	77,7	—	75,4	—	69,5	—	74,1	—	71,5	—	54,7	—
		—	16,	—	16,8	—	21,9	—	28,	—	33,6	—	40,7
16	Mexico, C. A.	2,2	—	1,6	—	2,	—	1,7	—	1,9	—	1,5	—
		—	1,9	—	1,2	—	1,7	—	1,4	—	1,5	—	1,1
17	For West Indies	2,1	—	3,5	—	4,4	—	4,5	—	5,8	—	6,	—
		—	3,2	—	2,8	—	4,	—	3,	—	4,1	—	4,7
18	S. Amer., Nth.	,7	—	1,	—	1,2	—	1,3	—	1,5	—	1,4	—
		—	1,8	—	1,7	—	1,8	—	3,1	—	3,7	—	3,8
19	„ Pacific	8,3	—	9,6	—	9,6	—	9,5	—	10,7	—	10,7	—
		—	2,8	—	3,1	—	3,9	—	4,4	—	5,8	—	6,
20	„ Atlantic	8,8	—	7,6	—	10,	—	9,7	—	11,2	—	12,8	—
		—	9,1	—	8,4	—	10,	—	12,	—	13,	—	13,2
21	British N. Amr.	12,	—	11,	—	10,2	—	11,8	—	11,6	—	9,1	—
		—	7,6	—	7,4	—	9,	—	9,4	—	8,6	—	10,2
22	British W. Ind.	7,1	—	7,2	—	7,5	—	6,4	—	6,7	—	6,6	—
		—	3,1	—	3,1	—	3,1	—	4,3	—	3,5	—	3,5
		120,	—	116,	—	114,	—	118,	—	121,	—	108,	—
		—	50,	—	44,	—	55,	—	66,	—	74,	—	83,
	(E.)												
23	Australia.....	21,7	—	22,	—	20,5	—	18,5	—	17,2	—	16,	—
		—	19,3	—	17,5	—	19,5	—	19,	—	17,4	—	14,1
24 } Totals { Imports		394,	—	374,	—	374,	—	370,	—	370,	—	355,	—
25 } Exports		—	199,	—	200	—	223	—	240	—	255,	—	256,
The Total Expts. were of Total Impts.		51 p. ct.		53 p. ct.		60 p. ct.		65 p. ct.		70 p. ct.		66 p. ct.	

Note.—The materials of this table are the Yearly Abstracts of the Official Board of Trade Tables, published in the *Statistical Journal*, and compiled on the uniform plan commenced by Mr. Newmarch in 1857, and Examples of which are in App. (I).

See note on p. 201. Owing to the omission of the places there named, the additions here do not always make up the exact totals in the Trade Returns, there being sometimes a difference of an odd million. In this way also various minor discrepancies between Tables A, B, and C have arisen, but there is no difference of any material importance except one which is noticed on p. 245.

(ex-Bullion), at Ports of Departure and Arrival.

1871.		1870.		1869.		1868.		1867.		1866.		1865.		Num- ber.
I.	E.	I.	E.	I.	E.	I.	E.	I.	E.	I.	E.	I.	E.	
60,1	—	49,8	—	42,5	—	43,1	—	41,	—	46,8	—	21,5	—	15
—	34,2	—	28,3	—	24,6	—	21,4	—	21,9	—	28,5	—	21,2	16
1,5	—	1,4	—	1,5	—	1,3	—	1,1	—	,9	—	4,	—	17
—	1,4	—	1,3	—	,8	—	1,	—	1,	—	1,4	—	2,	18
3,5	—	5,8	—	5,2	—	5,1	—	4,8	—	3,4	—	5,5	—	19
—	4,1	—	3,9	—	1,9	—	3,2	—	3,3	—	3,6	—	3,4	20
1,3	—	1,1	—	1,4	—	1,2	—	1,2	—	1,9	—	1,8	—	21
—	3,7	—	2,3	—	2,6	—	2,8	—	2,7	—	3,4	—	2,8	22
8,1	—	8,8	—	7,8	—	7,9	—	8,3	—	6,1	—	8,	—	23
—	4,2	—	4,5	—	3,4	—	3,1	—	4,	—	3,2	—	2,8	24
9,8	—	8,6	—	9,4	—	10,1	—	8,	—	9,8	—	9,1	—	25
—	9,8	—	8,5	—	10,3	—	8,2	—	10,	—	11,5	—	8,4	26
9,2	—	8,5	—	7,7	—	6,8	—	5,9	—	6,9	—	6,3	—	27
—	8,3	—	6,8	—	5,2	—	4,8	—	6,9	—	6,8	—	4,7	28
7,1	—	6,	—	6,2	—	6,7	—	6,1	—	6,6	—	7,4	—	29
—	3,1	—	3,5	—	2,7	—	2,6	—	2,5	—	2,9	—	2,9	30
101,	—	90,	—	82,	—	82,	—	76,	—	82,	—	64,	—	31
—	68,	—	59,	—	51,	—	47,	—	52,	—	57,	—	48,	32
14,5	—	14,1	—	12,1	—	12,6	—	12,9	—	11,5	—	10,3	—	33
—	10,	—	9,9	—	13,4	—	12,	—	9,6	—	13,6	—	13,4	34
330,	—	303,	—	295,	—	295,	—	275,	—	295,	—	275,	—	35
—	222,	—	200,	—	190,	—	180,	—	181,	—	188,	—	166,	36
67	p. ct.	66	p. ct.	64	p. ct.	61	p. ct.	63	p. ct.	64	p. ct.	60	p. ct.	

This table (A) may be read thus:—In 1877 the declared values of the “Imports from” the countries composing Class I, Group (A), viz., *Northern Europe*, were 36,5 mln. £, and of the “Exports to” the same countries of British produce and manufactures were 10,2 mln. £; for the four classes (1—4) in Group (A), these totals were “Imports from,” 165 mln. £, and “Exports to,” 75 mln. £.

[On next page this Table (A) is continued for the seven years 1864-58.]

(A *Contd.*).—Declared Values of Merchandise (*ex-Bullion*), at Ports of Departure and Arrival.

Num- ber.	Foreign Countries in Tariff Groups.	1864.		1863.		1862.		1861.		1860.		1859.		1858.	
		I.	E.	I.	E.	I.	E.	I.	E.	I.	E.	I.	E.	I.	E.
(A.)															
1	North Europe....	22,3	—	19,3	—	21,1	—	18,7	—	23,1	—	19,6	—	16,3	—
		—	5,6	—	4,9	—	4,1	—	5,1	—	5,	—	5,9	—	4,4
2	Central „	32,4	—	27,4	—	27,9	—	24,7	—	27,9	—	20,7	—	17,8	—
		—	24,5	—	21,7	—	20,5	—	21,3	—	21,2	—	18,6	—	20,
3	West „	34,3	—	31,8	—	28,1	—	25,	—	24,2	—	22,2	—	17,5	—
		—	15,	—	16,	—	15,	—	15,1	—	10,9	—	9,	—	9,4
4	South „	4,1	—	4,6	—	5,	—	5,	—	4,9	—	4,6	—	4,1	—
		—	8,2	—	8,3	—	6,9	—	7,9	—	7,	—	5,6	—	6,4
		93,	—	83,	—	82,	—	74,	—	80,	—	67,	—	55,	—
		—	53,	—	51,	—	47,	—	49,	—	44,	—	39,	—	40,
(B.)															
5	Levant.....	25,9	—	22,6	—	17,3	—	13,2	—	15,9	—	12,5	—	9,8	—
		—	13,5	—	11,3	—	6,6	—	6,3	—	7,7	—	6,7	—	7,2
6	North Africa	,4	—	,5	—	,5	—	,5	—	,3	—	,3	—	,3	—
		—	,2	—	,2	—	,2	—	2,	—	,2	—	,1	—	,1
7	West „	1,	—	1,4	—	1,7	—	1,5	—	1,8	—	1,5	—	1,6	—
		—	,6	—	,7	—	,9	—	,9	—	1,	—	,7	—	,7
8	East „	,1	—	—	—	—	—	—	—	,1	—	,1	—	,1	—
		—	,1	—	,1	—	,1	—	—	,1	—	,3	—	—	—
9	Indian Seas	1,1	—	1,6	—	1,	—	1,2	—	1,1	—	2,2	—	1,7	—
		—	1,6	—	1,2	—	1,2	—	1,9	—	2,1	—	3,2	—	2,3
10	South Seas	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		—	—	—	—	—	—	—	—	—	—	—	1,	—	—
		29,	—	26,	—	21,	—	17,	—	19,	—	17,	—	14,	—
		—	16,	—	14,	—	9,	—	9,	—	11,	—	11,	—	10,
(C.)															
11	China and Japan	17,1	—	15,5	—	12,7	—	9,6	—	9,5	—	9,1	—	7,	—
		—	5,3	—	4,	—	3,2	—	4,9	—	5,3	—	4,4	—	2,9
12	British India	57,5	—	54,	—	39,	—	26,2	—	18,5	—	16,9	—	16,6	—
		—	22,	—	22,6	—	16,3	—	18,	—	19,3	—	20,5	—	17,3
13	Mauritius	1,6	—	2,	—	1,	—	1,9	—	1,7	—	1,7	—	1,7	—
		—	,7	—	,5	—	,5	—	,6	—	,5	—	1,9	—	1,7
14	Cape	2,	—	1,9	—	1,5	—	1,4	—	1,7	—	1,6	—	1,5	—
		—	2,3	—	1,5	—	1,9	—	2,	—	2,	—	,6	—	,6
		78,	—	74,	—	54,	—	39,	—	32,	—	29,	—	27,	—
		—	30,	—	29,	—	22,	—	26,	—	27,	—	28,	—	32,
(D.)															
15	United States....	17,9	—	19,6	—	27,7	—	49,4	—	14,7	—	34,3	—	34,3	—
		—	16,7	—	15,3	—	14,4	—	9,1	—	21,6	—	22,6	—	14,5
16	Mex.&Cent.Am.	3,6	—	2,8	—	1,1	—	,6	—	1,	—	,1	—	,4	—
		—	2,1	—	1,8	—	1,	—	,7	—	,6	—	,8	—	8,
17	Foreign W. Ind.	6,8	—	4,9	—	4,6	—	4,9	—	3,6	—	3,8	—	4,1	—
		—	4,4	—	3,5	—	3,1	—	2,5	—	2,7	—	2,6	—	2,6
18	So. Amer.,North	1,9	—	,9	—	,9	—	,6	—	,7	—	,6	—	,4	—
		—	2,5	—	2,	—	1,	—	1,4	—	1,2	—	1,	—	,8
19	„ Pacific	5,9	—	6,1	—	5,6	—	5,7	—	5,4	—	3,8	—	6,9	—
		—	3,	—	2,5	—	1,7	—	2,6	—	3,1	—	2,3	—	2,3

(A *Contd.*)—Declared Values of Merchandise (*ex-Bullion*), at Ports of Departure and Arrival.

Num. ber.	Foreign Countries in Tariff Groups.	1864.		1863.		1862.		1861.		1860.		1859.		1858.	
		I.	£.	I.	£.	I.	£.	I.	£.	I.	£.	I.	£.	I.	£.
20	(D.)— <i>Contd.</i> So. Amer. Atlntc.	9,3	—	6,9	—	6,5	—	4,7	—	4,2	—	5,2	—	4,	—
31	British N. Amr.	6,9	—	8,2	—	8,5	—	8,6	—	6,8	—	5,5	—	4,6	—
32	„ W. Ind.	11,4	—	8,9	—	6,6	—	6,1	—	6,3	—	5,7	—	6,7	—
		—	4,3	—	3,9	—	3,2	—	2,7	—	2,6	—	2,3	—	2,4
		64,	—	58,	—	61,	—	81,	—	73,	—	59,	—	61,	—
		—	47,	—	39,	—	33,5	—	26,	—	42,	—	40,	—	32,
23	(E.) Australia.....	10,	—	7,2	—	7,1	—	6,	—	6,4	—	5,8	—	5,3	—
		—	11,8	—	12,5	—	11,9	—	10,6	—	9,7	—	11,2	—	10,4
24	Total { Imports	274,*	—	249,	—	226,	—	217,	—	210,	—	180,	—	164,	—
	Exports	—	160,	—	146,	—	124,	—	125,	—	135,	—	130,	—	116,
The Total Expts. were of Total Imports		60 p. ct.		60 p. ct.		55 p. ct.		58 p. ct.		64 p. ct.		72 p. ct.		70 p. ct.	

The following short summary will show the progress of Total Imports and of Exports of British Produce and Manufactures in the several Groups of Countries in the years 1877, '74, '70, '65, and '58 in mln. £.

Tariff Groups.	1877.		1874.		1870.		1865.		1858.	
	I.	£.	I.	£.	I.	£.	I.	£.	I.	£.
A	165	—	157	—	127	—	106	—	55	—
	—	75	—	95	—	73	—	57	—	40
B	26	—	24	—	27	—	31	—	14	—
	—	14	—	16	—	20	—	16	—	10
C	61	—	55	—	45	—	59	—	27	—
	—	83	—	42	—	36	—	30	—	82
D	120	—	118	—	90	—	64	—	61	—
	—	50	—	66	—	59	—	48	—	32
E	22	—	19	—	14	—	10	—	5	—
	—	19	—	19	—	10	—	13	—	10
Totals	394	—	370	—	303	—	275	—	164	—
	—	199	—	240	—	200	—	166	—	116
Exports P. ct.	51 p. ct.		65 p. ct.		66 p. ct.		66 p. ct.		70 p. ct.	

* There is a difference between this figure and the total on p. 249 (Table B), arising from a discrepancy in the *Journal* for 1865, which it has not been thought needful to investigate.

(B).—"Imports into" *United Kingdom; Declared Values of Merchandise (ex-Bullion), at beginning with (1) the most*

Classes of Imports.	1877.	1876.	1875.	1874.	1873.	1872.	1871.	1870.	1869.
(1) Raw Materials—Textile	<i>Min. £</i>	<i>Min. £</i>	<i>Min. £</i>	<i>Min. £</i>	<i>Min. £</i>	<i>Min. £</i>	<i>Min. £</i>	<i>Min. £</i>	<i>Min. £</i>
Cotton wool	35,5	40,4	46,3	51,	54,9	53,6	55,7	53,4	56,8
Wool (Sheep's)	26,3	25,	22,9	22,6	20,7	19,9	19,6	16,1	15,
Silk	17,7	16,2	10,5	15,7	15,5	14,5	16,	23,	18,3
Flax	5,	3,5	4,4	5,5	5,3	5,	5,8	6,	4,2
Hemp	2,1	2,	2,3	2,2	2,3	6,3	6,5	4,4	4,1
Indigo	1,6	2,1	1,6	2,2	2,5	2,4	9	2,7	3,1
	88,3	89,2	88,	99,2	101,2	101,7	104,5	105,6	101,5
<i>P. ct. of imports</i>	22	24	24	27	28	30	32	33	32
(2) Raw Materials—Various									
Hides	6,5	6,3	7,	6,8	6,7	6,7	5,	4,6	3,3
Oils	5,1	4,8	5,4	4,8	5,5	4,6	5,1	4,2	4,3
Metals	11,	10,2	12,7	11,1	11,	9,2	9,5	5,4	5,3
Tallow	2,6	2,9	2,	2,3	3,1	2,9	3,1	3,3	2,8
Timber	20,1	19,	15,3	21,9	19,7	15,8	12,1	11,7	10,1
	45,4	43,2	42,4	46,9	46,	39,2	34,8	29,2	25,8
<i>P. ct. of imports</i>	11	11	11	12	12	11	10	9	8
(3) Raw Materials—Agricultural.									
Guano	1,7	2,4	1,3	1,3	2,1	1,2	2,	3,5	2,6
Seeds	9,1	9,	8,8	7,5	7,1	7,3	8,1	4,	3,7
	10,8	11,4	10,1	8,8	9,2	8,5	10,1	7,5	6,3
<i>P. ct. of imports</i>	3	3	2	2	2	2	3	2	2
(4) Food.									
Grain and meal	63,2	51,6	52,7	50,7	51,5	51,	42,4	34,2	37,
Provisions	33,2	32,8	25,8	25,9	23,8	19,	18,2	15,9	16,
	96,5	84,4	78,5	76,6	75,3	70,	60,6	50,1	53,
<i>P. ct. of imports</i>	24	23	21	20	20	20	18	15	16
(5) Tropical, &c., Produce.									
Tea	12,5	12,8	14,1	11,6	11,6	13,	11,7	10,1	10,8
Coffee	7,8	6,4	7,6	7,1	7,3	5,3	5,4	4,9	4,9
Sugar	27,3	20,6	21,9	16,1	21,4	18,5	18,6	17,5	16,
Tobacco	3,5	4,	3,	3,9	4,	2,8	3,7	2,2	2,2
Rice	3,5	2,9	3,	3,6	2,3	3,5	2,3	2,2	2,8
Fruits	4,3	3,8	3,8	3,3	3,	3,9	3,2	2,2	2,8
Wines	7,2	7,	6,8	6,9	8,3	7,7	7,1	4,8	5,3
Spirits	2,2	4,	2,9	2,6	3,3	2,2	2,9	3,1	2,
	68,3	61,5	63,1	55,1	61,2	56,9	54,9	47,	46,3
<i>P. ct. of imports</i>	17	16	16	17	16	16	16	14	14

Ports of Arrival; Twenty-Two Years, 1856-77; Arranged in Classes of Imports, important. (In min. £, thus 35,5 = 35,500,000.)

1868.	1867.	1866.	1865.	1864.	1863.	1862.	1861.	1860.	1859.	1858.	1857.	1856.
Min. £	Min. £	Min. £	Min. £	Min. £	Min. £	Min. £	Min. £	Min. £	Min. £	Min. £	Min. £	Min. £
55,2	52,	77,5	66,	78,2	56,3	31,1	38,6	35,8	34,6	30,1	29,3	26,4
15,3	16,5	18,	15,4	16,	12,3	12,1	9,7	11,	9,8	8,9	9,7	8,7
19,3	16,1	15,9	18,1	12,9	15,2	15,9	7,9	10,3	10,6	6,1	14,2	8,5
5,1	4,2	4,5	5,4	5,3	4,3	5,2	3,4	8,8	3,8	3,	3,5	3,6
4,	3,1	3,2	3,5	4,	3,5	2,6	1,9	1,9	2,4	1,9	2,	2,
2,9	2,4	2,2	2,	2,3	2,4	2,5	3,	2,5	1,9	2,6	2,2	2,5
101,8	94,3	121,3	110,4	118,7	94,	69,4	64,6	65,3	63,	52,4	60,9	51,7
32	34	40	40	40	38	31	30	31	36	31	31	30
3,7	3,1	3,3	3,1	3,1	3,2	3,2	2,9	3,3	3,4	2,5	4,5	2,8
4,	4,1	4,5	4,3	3,4	4,1	3,9	3,6	3,9	3,6	3,6	4,	4,
5,2	4,6	5,	5,2	4,5	4,1	4,6	3,7	4,2	3,9	3,7	4,	3,9
2,9	2,4	3,	3,1	2,1	2,4	2,5	3,3	4,	2,9	3,	3,3	2,9
10,3	9,3	10,4	11,5	10,9	10,7	9,3	9,9	9,2	3,2	6,	7,6	8,6
26,1	23,5	26,2	27,2	24,	24,6	23,5	23,3	24,7	22,	18,9	23,4	22,2
8	8	8	9	8,	9	10	10	11	12	11	12	13
2,	2,1	1,5	2,7	1,5	2,6	1,6	2,	1,5	,8	4,1	3,6	2,1
4,3	3,3	3,3	4,9	3,9	3,4	3,3	3,1	3,4	3,	2,7	3,1	3,2
6,3	5,4	4,8	7,8	5,4	6,	4,9	5,1	4,9	3,8	6,8	6,7	5,8
2	2	2	2	2	2	2	2	2	2	4	3	3
39,2	41,1	29,9	20,7	19,7	25,9	37,8	34,7	31,4	17,9	20,	19,2	23,
13,9	9,7	10,4	10,3	9,8	8,8	8,6	7,8	6,5	3,3	3,1	4,	4,7
53,1	50,8	40,3	31,	29,5	34,7	46,3	42,5	38,	21,2	23,1	23,2	27,7
17	18	14	11	10	13	20	19	18	10	13	12	16
12,4	10,1	11,1	10,	9,4	10,7	9,2	6,9	6,9	5,8	5,2	4,7	5,2
4,9	4,3	4,1	4,6	3,6	4,1	3,3	2,6	2,5	2,	1,7	1,7	1,5
15,	13,1	12,2	13,	16,5	12,4	12,	13,3	12,8	12,5	13,5	16,4	12,5
2,4	2,4	2,6	3,3	3,4	3,	2,3	2,2	1,8	1,8	2,5	2,2	2,2
2,9	2,	1,5	1,3	1,3	1,9	2,4	2,1	1,	,8	1,7	2,	2,
2,5	1,5	1,3	1,4	1,2	1,6	1,2	1,5	1,3	1,6	1,3	1,5	1,6
5,4	4,8	4,8	3,9	5,	4,5	3,6	3,9	4,2	2,8	2,	4,1	3,7
2,1	2,1	2,1	1,5	2,	1,8	1,7	1,6	1,9	2,3	1,3	2,7	2,2
47,6	40,3	39,7	39,	42,9	40,	35,8	34,1	32,4	29,5	29,2	35,3	31,
15	14	13	14	15	16	15	15	15	16	17	18	12

(B *Contd.*).—"Imports into" *United Kingdom; Declared*

Classes of Imports.	1877.	1876.	1875.	1874.	1873.	1872.	1871.	1870.	1869.
(6) Remainder of Enumerated Artels.	Min. £ 45,1	Min. £ 46,	Min. £ 53,	Min. £ 46,	Min. £ 42,1	Min. £ 44,3	Min. £ 37,	Min. £ 16,7	Min. £ 17,2
<i>P. ct. of imports</i>	11	12	14	12	11	12	11	5	5
(7) Unenumerated Artels.	39,5	38,3	39,	36,3	35,3	35,	24,9	64,	62,6
<i>P. ct. of imports</i>	10	10	10	9	9	10	7	20	20
Total Imports.....	394	374	374	368	370	355	326	320	313
Total Exports (B. P.)	199	200	223	240	255	256	219	199	190
Excess of Imports ...	195	174	151	128	115	97	107	121	123
Excess of Imports } <i>p. ct.</i>	50	46	42	35	30	27	33	38	40

Note.—The materials of this table are also from the *Statistical Journal*, as explained at foot. This table may be read thus—In 1877 the declared value of the imports into United Kingdom imports for 1877, viz., 394 mln. £.—The total *Exports* of 1877 were 199 mln. £, showing an

I give on page opposite a short summary of the percentages shown in these two Apps. (A) and (B).

The *Excess* of Imports over Exports in the five periods of years between 1856-77 gives this series, starting from 1856:—

31, 42, 40, 35, 45, *p. ct.*

This series is not quite regular, but the excess increases steadily.

The cols. 4 and 5 are curious, as showing that the supplemental Imports have amounted with little variation to about one-fifth of the total Imports.

Values of Merchandise (ex-Bullion), at Ports of Arrival.

1868.	1867.	1866.	1865.	1864.	1863.	1862.	1861.	1860.	1859.	1858.	1857.	1856.
Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £
14,6	6,6	6,4	5,5	5,6	4,8	4,2	3,9	3,7	3,4	3,	3,9	3,5
4	2	2	2	2	2	2	1	1	1	1	2	2
62,4	54,2	59,7	55,0	56,5	45,1	42,5	43,4	42,2	35,8	38,8	38,4	35,8
20	20	20	20	20	18	18	20	20	20	20	20	20
312	275	298	275	282*	249	226	217	211	179	166	192	176
179	181	188	166	160	146	124	125	136	130	116	122	116
183	94	110	109	122	103	102	92	75	49	50	70	60
42	34	38	38	43	41	46	42	35	28	30	34	33

of Appendix (A).

of "Raw Materials—Textile," Class I, was 88,3 mln. £, or equal to 22 per cent. of the total excess of Imports of 195 mln. £, or 50 per cent.

Apps. (A) and (B).—Summary of Percentages.

Years in Periods.	Imports.		Per Cent. of Total Imports of		Years.	Imports.		Per Cent. of Total Imports of	
	The Excess over Exports was	The Total Exports were of Total Imports.	Remainder Enu- merated.	Unenu- merated.		The Excess over Exports was	The Total Exports were of Total Imports.	Remainder Enu- merated.	Unenu- merated.
	Per cent.	Per cent.	Per cent.	Per cent.		Per cent.	Per cent.	Per cent.	Per cent.
1877 ...	50	51	11	10	1864.....	43	60	2	20
'76 ...	46	53	13	10	'63.....	41	60	2	18
'75 ...	42	60	14	10	'62.....	46	55	2	18
	45	55	12	10	'61.....	43	48	1	20
					'60.....	35	64	1	20
1874 ...	35	65	12	9		42	58	2	19
'73 ...	30	70	11	9					
'72 ...	37	66	11	10					
'71 ...	33	67	5	7	1859.....	28	72	1	20
'70 ...	38	66	5	20	'58.....	30	70	1	20
	35	65	9	11	'57.....	34	—	2	20
					'56.....	33	—	2	20
1869 ...	40	64	5	10		31	71	2	20
'68 ...	43	61	4	22					
'67 ...	34	63	2	20					
'66 ...	38	64	2	20					
'65 ...	38	66	2	20					
	40	60	3	20	Ave. } 23 yrs. }	38	62	6	16

* See note on p. 245.

(C).—"EXPORTS FROM" *United Kingdom, British Produce and Manufactures;*
Divisions of Exports, beginning

Exports.	1877.	1876.	1875.	1874.	1873.	1872.	1871.	1870.	1869.
	Min. £	Min. £	Min. £	Min. £	Min. £	Min. £	Min. £	Min. £	Min. £
(a) Textile Manufactures									
Cotton	57,	54,8	58,6	59,7	61,4	63,4	57,6	56,7	53,
" yarn	12,2	12,8	13,2	14,5	15,8	16,7	15,1	14,7	14,2
Wool	17,3	18,6	21,6	22,8	25,3	32,4	27,2	21,6	22,6
" yarn	3,6	4,4	5,1	5,6	5,4	6,1	6,1	5,2	5,8
Silk	1,7	1,8	1,7	2,1	1,9	2,2	2,1	2,4	2,1
" yarn	,6	1,1	1,9	11,	1,7	11,9	1,3	,2	,2
Linen	5,8	5,6	7,3	7,1	7,3	8,2	7,5	7,4	6,8
" yarn	1,3	1,5	1,8	1,7	2,	2,8	2,2	2,2	2,3
	99,5	101,	110,	114,	121,	133,	119,	110,	107,
<i>P. ct. of total expts.</i>	50,	50,	55,	47,	47,	52,	54,	55,	56,
(b) Sewed Manufactures									
Apparel	2,8	2,9	3,2	3,2	3,4	3,1	2,7	2,2	2,4
Haberdashery and } millinery	3,8	3,8	4,9	6,1	6,6	6,6	5,9	4,8	4,6
	6,6	6,7	8,1	9,3	10,	9,7	8,6	7,	7,
<i>P. ct. of total expts.</i>	3,3	3,4	3,6	4,	4,	3,7	3,9	3,5	3,6
(c) Metals and Coal—									
Hardware	3,3	3,5	4,3	4,4	4,9	5,1	4,	4,5	4,4
Machinery	6,7	7,2	9,1	9,8	10,	8,2	5,9	5,3	5,1
Iron	20,1	20,7	26,8	31,2	37,8	36,1	26,1	21,1	19,5
Copper and brass	3,5	3,4	3,7	3,8	3,8	3,6	3,3	3,1	3,6
Lead and tin	1,4	1,2	1,3	1,6	1,5	1,8	1,6	4,3	4,2
Coals and culm	7,8	8,9	9,6	12,	13,2	10,4	6,3	5,5	5,1
	42,4	45,	54,	63,	71,	65,	47,	44,	42,
<i>P. ct. of total expts.</i>	22,	22,	24,	26,	27,	25,	21,	22,	22,
(d) Ceramic Manfctrs.—									
Earthenware and glass	2,6	2,6	2,8	3,2	3,4	3,1	2,6	2,5	2,7
<i>P. ct. of total expts.</i>	1,3	1,3	1,2	1,3	1,3	1,2	1,1	1,2	1,4
(e) Indgns. Manfctrs.—									
Beer and ale	1,9	1,9	2,	2,5	2,4	2,1	1,9	1,9	1,9
Butter	,3	,2	,2	,3	,3	,3	,3	,3	,3
Cheese	,1	,1	,1	,1	,1	,1	,1	,1	,1
Candles	,2	,1	,2	,2	,2	,2	,2	,1	,2
Salt	,5	,5	,7	,6	,3	,5	,5	,4	,4
Spirits	,4	,3	,3	,1	,2	,2	,2	,2	,2
Soda	—	—	2,3	2,6	2,9	—	1,7	1,5	1,4
	3,2	3,1	5,8	6,4	6,9	3,4	4,9	4,5	4,5
<i>P. ct. of total expts.</i>	1,5	1,5	2,6	2,6	2,7	1,3	2,2	2,2	2,3

Declared Values at Port of Shipment,—Twenty-Two Years, 1856-77, arranged in (a) with the most important.

1868.	1867.	1866.	1865.	1864.	1863.	1862.	1861.	1860.	1859.	1858.	1857.	1856.
Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £
52,8	56,	60,9	46,9	45,8	89,4	30,6	37,5	42,1	38,7	33,4	30,4	30,2
14,7	14,9	13,7	10,4	9,1	8,	6,2	9,3	9,9	9,5	9,8	8,7	8,
19,5	20,1	21,7	20,1	18,6	15,6	13,1	11,1	12,2	12,	9,8	10,7	9,5
6,4	5,9	4,7	5,4	5,4	5,	3,8	3,6	3,8	3,1	2,9	2,9	2,9
2,1	1,6	1,7	1,9	2,	2,	2,	2,	2,1	2,1	1,9	2,6	2,7
,2	,2	,2	,3	,3	,3	,4	,3	,3	,2	,2	,3	,3
7,1	7,4	9,6	9,1	8,1	6,5	5,1	8,9	4,8	4,6	4,1	4,5	4,9
2,3	2,3	2,4	2,5	3,	2,5	1,8	1,6	1,8	1,7	1,7	1,6	1,4
105,	108,	115,	96,	92,	79,1	63,	69,	77,	72,	64,	62,1	60,
58,	59,	61,	57,	57,	54,	50,	55,	56,	55,	55,	50,	51,
2,3	2,2	2,9	2,6	2,6	2,8	2,6	2,1	2,2	2,2	1,9	2,2	1,8
4,4	4,4	5,4	5,	4,8	4,4	3,6	3,4	4,	4,3	3,5	3,8	3,6
6,7	6,6	8,8	7,6	7,4	7,2	6,1	5,6	6,2	6,5	5,4	6,	5,4
3,7	3,6	4,4	4,5	4,6	4,9	4,9	4,4	4,5	5,	4,6	5,	4,6
3,8	3,9	4,4	4,3	4,2	3,8	3,3	3,4	3,8	3,8	3,3	4,	3,7
4,7	5,	4,7	3,2	4,8	4,4	4,1	4,2	3,8	3,7	3,6	3,9	2,7
15,	15,1	14,8	13,5	13,2	13,1	11,3	10,3	12,2	12,3	11,2	13,4	13,
3,2	3,3	2,8	3,2	4,	4,2	2,8	2,3	3,9	2,6	2,8	3,1	2,6
3,6	3,3	3,2	2,8	2,8	2,9	2,7	1,8	2,6	2,6	2,2	2,5	2,4
5,4	5,4	5,1	4,4	4,1	3,7	3,8	3,6	3,3	3,3	3,2	3,2	2,8
36,	36,	35,	33,	33,	32,	28,	26,	28,	28,	26,	30,	27,
20,	20,	18,	20,	20,	21,	22,	20,	20,	21,	22,	24,	23,
2,4	2,4	2,5	2,2	2,2	2,1	1,9	1,7	2,1	2,	1,7	2,1	2,
1,3	1,3	1,3	1,3	1,3	1,4	1,5	1,3	1,5	1,5	1,4	1,7	1,7
1,9	1,9	2,0	2,1	1,8	1,8	1,6	1,4	1,8	2,1	1,9	1,6	1,4
,2	,3	,4	,3	,3	,5	,4	,5	,6	,7	,5	,6	,7
,1	,1	,2	,1	,2	,2	,1	,1	,1	,1	,1	,1	,2
,2	,2	,2	,1	,1	,2	,2	,3	,2	,2	,2	,3	,3
,5	,4	,4	,3	,3	,3	,3	,4	,4	,3	,3	,3	,4
,2	,1	,1	,2	,5	,4	,5	,5	,3	,3	,2	,7	1,
1,5	1,5	1,6	1,1	,9	,8	,9	,6	1,	1,	,8	,8	,6
4,6	4,7	4,9	4,2	4,1	4,2	4,0	3,8	4,4	4,7	4,	4,4	4,6
2,5	2,5	2,6	2,5	2,5	2,8	3,2	3,	3,2	3,6	3,4	3,6	3,9

(C *Contd.*).—"EXPORTS FROM" *United Kingdom ; British Produce*

Exports.	1877.	1876.	1875.	1874.	1873.	1872.	1871.	1870.	1869.
(f) Various Manufctrs.—	Min. £	Min. £	Min. £	Min. £	Min. £	Min. £	Min. £	Min. £	Min. £
Books	,9	,9	,9	,9	,9	,9	,9	,6	,7
Furniture	—	—	—	—	—	—	—	,2	,2
Leather manufactures	3,2	3,3	,4	3,5	3,4	3,7	3,6	2,6	2,6
Soap	,4	,3	,3	,3	,2	,3	,3	,2	,2
Plate and watches	,2	,2	,3	,3	,3	,2	,2	,6	,5
Stationery	,7	,7	7,	,7	,7	,7	,7	,5	,5
	5,3	5,4	2,6	5,7	5,5	5,8	5,7	4,7	4,7
<i>P. ct. of total expts.</i>	2,7	2,7	1,1	2,3	2,1	2,2	2,6	2,3	2,4
(g) Remainder of enumerated artls. }	21,3	19,8	22,9	20,3	19,4	19,8	18,1	15,5	12,3
<i>P. ct. of total expts.</i>	10,	10,	10,2	8,4	7,6	7,7	8,2	7,7	6,4
(A) Unenumerated artls.	17,3	17,3	17,2	17,1	17,6	15,8	13,4	11,2	10,
<i>P. ct. of total expts.</i>	8,6	8,6	7,7	7,1	6,9	6,1	6,1	5,6	5,2
Total {	Exports (B. P.)	199,	200,	223,	240,	255,	256,	219,	200,
	Imports	394,	374,	374,	368,	370,	355,	326,	320,
Exports (B. P.) } <i>per cent.</i>	to imports	50,	53,	60,	65,	70,	72,	67,	62,
		61,							

Note.—The materials of this Table (C) are, as with A and B, from the yearly abstracts given in the *Statistical Journal*, as described in note to Table (A). See also App. (I).

and Manufactures; Declared Values at Port of Shipment.

1868.	1867.	1866.	1865.	1864.	1863.	1862.	1861.	1860.	1859.	1858.	1857.	1856.
Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £
,7	,6	,6	,5	,5	,4	,4	,4	,5	,5	,4	,4	,4
,2	,2	,2	,3	,3	,3	,3	,3	,2	,2	,3	,3	,2
2,4	1,8	2,1	2,5	2,4	2,3	2,6	2,2	2,1	2,	2,	2,3	1,8
,3	,3	,2	,2	,2	,3	,2	,2	,3	,2	,2	,2	,3
,4	,4	,4	,4	,4	5,	,5	,4	,6	,5	,4	,5	,5
,4	,4	,4	,4	,3	,3	,3	,7	,7	,9	,8	,8	,7
4,4	3,7	3,9	4,3	4,1	4,1	4,3	4,2	4,4	4,3	4,1	4,5	3,9
2,5	2,	2,1	2,5	2,5	2,8	3,4	3,3	3,2	3,3	3,5	3,6	3,3
11,2	10,5	10,7	9,7	9,7	8,7	8,8	4,6	4,	3,4	3,5	3,8	4,5
6,2	5,8	5,6	5,8	6,	5,9	7,	3,6	2,9	2,6	3,	3,1	3,8
9,1	8,6	8,6	7,8	7,5	8,8	7,8	10,3	9,1	9,4	8,	9,2	8,4
4,	4,7	4,5	4,6	4,6	6,	6,2	8,2	6,6	7,2	6,9	7,5	7,2
179,	181,	189,	166,	160,	146,	124,	125,	136,	130,	117,	122,	116,
312,	275,	278,	275,	282,	249,	226,	217,	211,	179,	166,	192,	176,
57,	66,	70,	60,	58,	60,	55,	58,	64,	72,	70,	64,	66,

This Table (C) may be read thus—In 1877 the declared value of the Exports of British *Textile Manufactures*, Division (A), was 99,5 mln. £, equal to 50 *per cent.* on the Total Exports (199 mln. £) of 1877.

[On the next page I collect into Table (D) the **Percentage** results of the three preceding Appendices as regards Tariff Groups—Classes of Imports and Divisions of Exports.]

(D).—The Five Tariff Groups of Countries, 1877-58, arranged—(1) According to the of "Imports from," of "Total Imports from,"—and (3) According

Periods of Years.	(1) "Exports to" were of the "Imports from," the Percentages as under (App. A.)					(2) The "Imports from" were of the Percentages				
	A.	B.	C.	D.	E.	1.		2.	3.	4.
						Cotton.	Other.			
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
1877.....	45	54	72	42	86	9	13	11	3	24
'76.....	55	52	69	37	80	11	13	11	3	23
'75.....	48	60	77	48	97	12	12	11	2	21
1875-77 } per ct. }	51	56	73	42	88	11	13	11	3	23
1874.....	56	66	76	56	105	14	13	12	2	20
'73.....	61	66	68	61	102	15	13	12	2	20
'72.....	80	70	60	80	88	15	15	11	2	20
'71.....	67	55	66	67	71	17	15	10	3	18
'70.....	65	74	80	65	70	17	16	9	2	15
1870-74 } per ct. }	66	66	70	66	87	16	14	11	2	19
1870-77 } per ct. }	58	61	72	54	87	14	14	11	2	21
1869.....	62	60	60	62	111	18	14	8	2	16
'68.....	57	57	68	57	99	18	14	8	2	17
'67.....	68	82	88	68	74	16	18	8	2	18
'66.....	50	79	60	69	123	25	15	8	2	14
'65.....	80	52	51	76	134	24	16	9	2	11
1865-69 } per ct. }	63	66	66	67	108	20	15	8	2	15
1864.....	57	55	38	74	118	27	13	8	2	10
'63.....	61	54	39	67	178	22	16	9	2	13
'62.....	57	43	40	54	170	14	17	10	2	20
'61.....	57	53	66	31	176	18	12	10	2	19
'60.....	55	58	84	57	161	17	14	11	2	18
1860-64 } per ct. }	57	53	53	57	161	20	15	10	2	16
1859.....	58	65	96	67	224	19	17	12	2	10
'58.....	71	71	118	52	208	18	13	11	4	13
'57.....	—	—	—	—	—	15	16	12	3	12
'56.....	—	—	—	—	—	14	16	13	3	16
1856-59 } per ct. }	—	—	—	—	—	17	15	12	3	13
1856-77 } per ct. }	—	—	—	—	—	17	14	13	3	17
1858-77 } per ct. }	60	62	61	60	132	—	—	—	—	—

Note.—This table is a *Percentage abstract* of the three Tables (A), "Imports from" and "Exports to" countries divisions of British manufactures and produce.—The (1) division of this Table (B) may be read thus—(If the Total Imports were 75 mln. £, or 45 per cent.; in 1876 the exports were 55 per cent.; in 1875 they were 48 per cent., or an average of Imports from—thus in 1877 the value of Cotton Wool imported was 36.5 mln. £, or equal to 9 per cent. of the Total The (3) division similarly applies the *percentage* test to Table (C): "Exports to." Thus in 1877 the Exports of in 1876 they were equal to 50 per cent.; in 1875 to 53 per cent., and for 1875-77 to 52 per cent.

Percentage of "Exports to," of "Imports from,"—(2) According to the Percentage to Percentage of "Exports to" of "Total Exports to."

"Total Imports from," as under. (App. B.)			(3) The "Exports to" were of the "Total Exports to" the Percentages as under. (App. C.)							
5.	6.	7.	a.	b.	c.	d.	e.	f.	g.	h.
Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.
17	11	10	50	3	22	1	2	3	10	9
16	12	10	50	3	22	1	2	3	10	9
16	14	10	55	4	24	1	3	1	10	8
18	12	10	52	3	23	1	2	3	10	8
17	12	9	47	4	26	1	3	2	8	7
16	11	9	47	4	27	1	3	2	8	7
16	12	10	52	4	25	1	1	2	8	6
16	11	7	54	4	21	1	2	3	8	6
14	5	20	55	4	22	1	2	2	8	6
18	10	11	51	4	24	1	3	2	8	6
16	11	11	51	4	23	1	2	2	9	7
14	5	20	56	4	22	1	2	2	6	5
15	4	20	58	4	20	1	3	3	6	4
14	2	20	59	4	20	1	3	2	6	5
13	2	20	61	4	18	1	3	2	6	5
14	2	20	57	5	20	1	3	3	6	5
14	3	20	58	4	20	1	3	2	6	5
15	2	20	57	5	20	1	3	3	6	5
16	2	18	54	5	21	1	3	3	6	6
15	2	18	50	5	22	2	3	3	7	6
15	1	20	55	4	20	1	3	3	4	8
15	1	20	56	5	20	2	3	3	3	7
15	2	20	54	5	20	2	3	3	5	6
16	1	20	55	5	21	2	4	3	3	7
17	1	20	55	5	22	1	3	4	3	7
18	2	20	50	5	24	2	4	4	3	8
12	2	20	51	5	23	2	4	3	4	7
16	2	20	53	5	23	2	4	4	3	7
15	6	16	54	4	22	1	3	3	6	6
—	—	—	—	—	—	—	—	—	—	—

arranged in Tariff Groups;—(B) "Imports from" arranged in Classes of commodities;—(C) "Exports to" arranged in from the countries in Tariff Group A (Table A) in 1877, viz., 165 mln. £, the "Exports to," the same group of countries "Export to" for 1875-77 of 51 per cent.—The (2) division of this table gives the percentage test applicable to the Table (B) Imports of 394 mln. £ for the year; in 1876 equal to 11 per cent., in 1875 equal to 12 per cent.; or 11 per cent for 1875-77 Class 1, Textile Manufactures, were 99.5 mln. £, or equal to 50 per cent. of the Total Exports of 199 mln. £ in 1877

(E).—**Supplemental Imports, Single Years, 1876-86-86,—Details of Leading Items in—(a) Remainder of Enumerated Imports; and (b) Unenumerated Imports, as given in Official Returns (see Tables B and C), from Materials supplied by Mr. Giffen.** [0,000's omitted, thus 59 = 590,000.]

Articles of Import into United Kingdom.	1876.			1886.		1886.	
	(a)	(b)		(a)	—	(a)	—
Raw Materials—							
Bark	59	—		31		43	
Bones	53	—		40		36	
Brimstone	28	—		42		38	
Bristles	43	—		35		36	
Caoutchouc	—	10		80		30	
Cochineal	—	34		59		39	
Cork	—	68		35		57	
Cream of Tartar	—	—		24		16	
Feathers	—	89		26		5	
Gums	—	36		32		23	
Hair	—	1,11		1,28		72	
Jute	2,80	—		1,52		61	
Dyewoods	—	60		26		52	
Gambier	49	—		38		40	
Horns	—	18		1,1		11	
Madder	1,89	—		1,02		1,00	
Plumbago	—	10		6		—	
Pyrites	1,21	—		65		—	
Quicksilver	2,84	—		80		5	
Rags	1,28	—		83		23	
Saltpetre	2,15	—		90		94	
Skins	—	3,51		1,65		1,43	
Painters' colours	—	73		—		—	
Teeth, elephants'	60	—		44		34	
Vermilion	63	—		53		30	
Petroleum	1,43	—		70		—	
Opium	—	39		16		6	
Resin	31	—		42		25	
Sponge	—	—		10		17	
Ashes	—	—		9		23	
	17,43	8,93			15,53		10,58
Agriculture, Food, &c.—			26,36				
Oxen and bulls	3,55	—		4,09		1,15	
Sheep	2,23	—		1,50		26	
Oil-seed cake	1,76	—		1,04		72	
Seeds	—	94		81		25	
Onions	—	25		14		4	
Nuts	—	1,00		10		3	
Yeast	—	41		23		17	
Spices	75	28		50		48	
Drugs	—	52		8		—	
Hops	76	—		57		4	
Cocoa	56	—		36		17	
	961	350			9,42		3,31
Manufactures—			13,11				
Cotton	1,81	—		1,13		55	
Woollen	5,06	—		2,03		1,34	
Leather	2,17	—		1,28		43	
Paper	1,31	—		61		3	
Glass and beads	1,85	76		70		12	
Lace	—	51		16		6	
Candles	—	28		21		—	
Watches and clocks	45	—		51		36	
Flowers	—	53		29		10	
Musical instruments	—	57		23		14	
Toys	—	43		20		6	
Cordage	—	56		43		10	
Straw hats	—	9		1,18		—	
Iron in bars	1,09	—		67		77	
	13,64	3,73	17,37		9,63		3,56
			56,84		34,58		17,45
Other enumerated Imports (a)	4,10	—					
„ Unenumerated Imports (b)	—	22,14	26,24		31,42		31,35
	44,77	38,30	83,07		66,10		83,80

(F).—**Supplemental Exports, Single Years, 1876-66-56.**—*Details of Leading Items in—(a) "Remainder of Enumerated Exports;" and (b) "Unenumerated" Exports, as given in Official Returns (see Tables B and C)—from Materials supplied by Mr. Giffen.*

[0,000's omitted, thus 21 = 210,000, and 6 = 60,000].

Articles of Export from United Kingdom.	1876.		1866.		1856.	
	(a)	(b)	(a)	(b)	(a)	(b)
I. Agriculture, Food, &c.						
Horses	21	—	17	—	—	10
Fish	1,06	—	80	—	53	—
Pickles	63	—	47	—	40	—
Biscuits	—	37	—	11	—	6
Medicines	—	64	—	—	—	61
Manure	—	88	63	16	—	5
	2,00	1,90	1,97	27	93	73
			3,90	2,24		1,64
II. Various Materials—						
Cement	—	63	—	28	—	13
Skins	—	85	—	58	—	28
Stone and slates	—	46	—	15	—	15
Grease	—	12	—	6	—	6
Bleaching materials	—	33	—	19	—	8
Naphtha	—	47	—	15	—	2
Chemicals	1,90	—	1,47	—	—	—
Printers' colours	1,30	—	55	—	43	—
Sweet oil	1,97	—	1,43	—	1,08	—
Saltpetre	—	6	—	6	—	8
Building materials	—	—	—	60	—	—
Musical instruments ...	—	22	—	25	—	13
	5,07	314	3,44	2,30	1,51	93
			8,21	5,70		2,44
III. Artistic—						
Prints	—	7	—	3	—	2
Pictures	—	30	—	7	—	4
Paper hangings	—	17	—	56	—	5
Floor cloth	—	35	—	90	—	8
Jewellery	—	—	—	16	—	90
Toys ...	—	—	—	7	—	—
			90	1,10		40
IV. Sundry Manufac- tures—						
Hats	1,	—	49	—	—	21
Jute manufacture	1,55	—	35	—	—	8
Telegraph materials	1,25	—	81	—	—	6
India rubber materials ...	78	—	—	48	—	—
Furniture	—	40	—	24	—	—
Tools and implements ...	—	41	—	27	—	15
Umbrellas	—	29	—	16	—	15
Tobacco	—	11	—	10	—	2
Perfumery	—	10	—	10	—	9
Zinc materials	—	19	—	13	—	—
Cordage	27	—	41	—	38	—
Arms and ammunition ...	1,38	—	1,10	—	—	60
Bags and sacks	1,21	—	68	—	—	35
Carriages	47	—	24	—	—	14
Sundries	—	—	—	—	—	36
	7,91	1,60	3,60	1,48	38	2,21
			9,51	5,08		2,50
	14,98	7,54	9,01	5,15	2,71	4,26
			22,51	14,12		6,98
Other enumerated Exports (a) ...	4,82	—	1,65	—	82	—
Unenumerated Exports (b) ...	—	9,80	—	3,45	—	3,68
			14,62	5,14		4,46
	19,80	17,33	10,66	8,60	3,53	7,94
			37,14	19,26		11,44

APPENDIX (G).

Wholesale Prices in London, Six Years 1845-50,—and Twenty-Seven Years 1851-77.

The Table (G) as below, has been arrived at under the following conditions.

During my editorship of the *Statistical Journal*, I gave particular attention to framing a systematic tabular record of the wholesale prices mostly in London, of such leading commodities of raw materials, food, and tropical produce as were most likely to exhibit the effect, or supposed effect, of the new supplies of Gold upon Prices and Markets; and in order to establish a basis or *datum* line, I tabulated the prices of forty-one articles for the six years 1845-50—that is the six years preceding 1851—the year of the Australian discoveries; and the year when the Californian discoveries first made known in 1848 were becoming important.

In the volume of the *Statistical Journal* for 1860 (vol. xxiii, p. 102) I inserted the following explanatory note:—

“This table exhibits the Wholesale Prices in London and Manchester for forty-one leading commodities at various periods, from the opening of 1845 to the close of 1859. In the cases where import duties attach, the prices *in bond* are of course given. The first line of the table gives the *average prices* of the several articles for the six years 1845-50, and is now published for the first time. Care has been taken to compile the figures from the same source, and in the same manner throughout. The authority employed has been the weekly return of prices given in the ‘Economist’ newspaper, and the results of the six years 1845-50 is the average of the quotations appearing on the first days of January, April, July and October of each year. The articles in the table and the arrangement of the table itself correspond with the similar tables constructed by the late Thomas Tooke and myself for the fifth and sixth volumes of the ‘History of Prices,’ published early in 1857, as on the whole the best mode of arriving at a definite view of the facts relating to wholesale prices.”

The records of prices begun on this plan have been carefully continued by me in the Annual Commercial Histories and Reviews of each year 1863-77, which have appeared as Supplements to the “Economist” newspaper in the months of March, 1864-78.

I have gradually seen reason to be dissatisfied with the six years 1845-50 as a *Datum level*. The prices of these six years were *too low* to represent fairly the prices of the say twenty years preceding the gold discoveries; and they were too low for several special reasons, for example: (1) the commercial panic of October, 1846; (2) the long series of continental revolutions, beginning in February, 1848; (3) the very severe and continuous pressure on the capital of this country, occasioned by the excessive expenditure on railways during the five years 1846-50.

I have been glad therefore for the purposes of the following Table (G), to avail myself of the researches of Professor Jevons, in his paper entitled, “On the Variations of Prices and the Value of the Currency, 1782-65.” (*Statistical Journal*, vol. xxviii, 1865, pp. 294—321.)

By means of Professor Jevons's figures, I am able to give the average prices for the *fifteen years* 1831-45, and for the *twenty years* 1831-50. The prices 1831-45 are from 8 to 35 per cent. *above* the six years 1845-50; and the prices 1831-50 are also considerably higher than the six years. These are corrections of most vital moment as regards the effects of the new gold.

(G).—Wholesale Prices in London, 1831-77, Expressed in Percentage Numbers, from *Mr. Neumarch's Paper in Statistical Journal*, 1860; and his continuation of the same record in the *Annual Commercial Reviews* in "Economist," for the Fifteen Years 1863-77.

1	2	3 (A) All Commo- dities. (44 Ar- ticles.)	4 5 (B) Raw Materials, Textile.		6 7 (C) Raw Materials, Sundry.		8 (D) Tropical Produce.	9 (E) Wheat.	10 (F) Provisions.
			Cotton and Cloth.	Silk, Flax, Wool.	Oils. Timber. Tallow, Leather.	Copper, Iron, Leather, Tin.	Coffee, Sugar, Tea.		Butchers' Meat.
3	1877.....	121	100	133	123	100	126	105	142
	'76.....	120	105	107	124	109	112	86	149
	'75.....	125	111	114	123	120	114	80	147
5	1874.....	130	116	130	122	131	128	115	139
	'73.....	135	132	143	120	138	116	107	157
	'72.....	135	140	144	120	133	112	107	139
	'71.....	120	122	130	114	108	103	105	138
	'70.....	121	147	132	114	107	105	88	127
5	1869.....	123	151	133	115	105	103	94	123
	'68.....	123	125	137	116	100	107	126	114
	'67.....	133	181	145	116	100	108	117	125
	'66.....	150	241	155	113	109	122	95	137
	'65.....	152	275	150	110	106	112	75	129
10	1864.....	172	357	147	115	118	119	76	118
	'63.....	157	275	143	118	114	117	87	111
	'62.....	135	170	137	118	114	117	111	116
	'61.....	120	112	142	123	118	115	98	121
	'60.....	122	118	131	123	123	125	83	107
13	1859.....	113	115	126	110	123	111	77	109
	'58.....	121	111	126	118	119	112	92	111
	'57.....	142	134	155	135	142	155	119	104
1	1853.....	115	110	116	112	120	107	85	108
1	'51.....	108	132	106	93	96	111	71	87
6	1845-50	100	100	100	100	100	100	100	100
20	'31-50	109	138	120	112	106	126	—	—
15	'31-45	115	151	130	115	108	135	—	—

Note.—The averages 1831-50 (twenty years) and 1831-45 (fifteen years) are from Professor Jevons's paper of 1865. See *Statistical Journal* of that date.

The *Datum Line* of the table is the figure 100 assigned to the prices of the six years 1845-50.

(H).—Wholesale Prices in London, in Two Divisions, viz. (1) *Professor Jevons (Twenty Years) 1831-50*; (2) *Mr. Newmarch (Thirty-Three Years) 1845-77*, stated in the *Average Annual Percentage Index Numbers of Groups of Years*, and adopting in each case the Prices for 1846-50 (Col. 7) as the Datum Line of 100.

1	2 Commodities observed.	JEVONS. (Twenty years) 1831-50.						NEWMARCH, (Thirty-three Years) 1845-77.			
		'31-35.	'36-40.	'41-45.	'51-45.	'46-50.	'31-50.	'45-50.	1857 and 1853.	'57-69.	'70-77
		5 yrs.	5 yrs.	5 yrs.	15 yrs.	5 yrs.	20 yrs.	6 yrs.	2 yrs.	13 yrs.	8 yrs.
1	{ All Commodities observed }	114	124	107	115	100	109	100	112	134	125
2	Cotton	164	164	126	151	100	138	100	121	175	127
3	Silk, flax, wool	133	133	111	130	100	120	100	111	140	127
4	{ Oils, timber, tallow, leather	113	126	107	115	100	112	100	102	118	120
5	{ Copper, lead, iron, tin }	102	121	100	108	100	106	100	108	118	117
6	Coffee, sugar, tea	135	150	121	135	100	126	100	108	119	115
7	{ Wheat (Gazette avge.) }	100	116	103	106	100	105	100	78	96	97
8	Butchers' meat	—	—	—	—	—	—	100	97	116	143
9	{ Fodder: hay, clover, straw }	110	120	120	117	100	108	—	—	—	—

The preceding Table (H) is founded, first, on the figures given by Professor Jevons, in his paper entitled, "On the Variation of Prices and the Value of the Currency since 1782," in the *Statistical Journal* (vol. xxviii), 1865 (pp. 254—320). Mr. Jevons drew his materials chiefly from the "Economist" newspaper. Second, in the tables given by myself in the *Statistical Journal* (vol. xxiii), 1860 (p. 102), for the six years 1845-50, and for the periods from 1850 to 1877, in the Commercial Reviews for the fifteen years from 1863 to 1877, appearing as supplements to the "Economist" newspaper in March of the years following. The materials of these tables were also obtained from the "Economist." The figures for 1845-50 were the average of four quotations on 1st January, April, July, October.

The period 1845-50, was selected as a *datum line* as being the six years just preceding the discovery of gold in California in 1848, and in Australia in 1851.

Mr. Jevons carries back his tables to 1782; I am able therefore to obtain from them the figures for the four periods of five years each 1831-50, in order to show what was the range of prices during the *twenty* years preceding the discoveries of 1848-51. All the evidence shows that the prices of the period 1845-50 were far lower than in the fifteen years 1831-45.

As regards Mr. Jevons's tables (cols. 2—8) I have assumed the 1846-50 figures to represent a datum line of 100, and cols. 3—8 of the Table (H), are calculated from that point.

The actual figures given by Mr. Jevons are as follows, Table (HA).

(HA).—*Wholesale Prices in London (Twenty Years) 1831-50, the Actual Percentage Numbers as given in Professor Jevons's Paper in Statistical Journal (vol. xxviii), 1865.*

1 Num- ber.	2 Particulars.	3	4	5	6	7	8
		JEVONS (Twenty Years), 1831-50.					
		1831-36.	1836-40.	1841-45.	1831-45.	1846-50.	1831-50.
		5 years.	5 years.	5 years.	15 years.	5 years.	20 years.
1	All commodities observed	80	87	75	81	70	80
2	Cotton	43	43	33	40	26	33
3	Silk, flax, wool	96	97	80	91	72	86
4	Oils	80	93	89	82	93	88
	Timber	108	117	98	108	18	108
	Dyes	47	51	36	44	33	42
5	Copper, lead, tin, iron ...	83	98	80	87	81	86
	Iron, several kinds.....	53	75	53	60	49	75
6	Coffee, sugar, tea, &c. ...	50	55	44	50	35	46
7	Wheat, Gazette average...	107	124	111	114	107	111
8	Grain, wheat, barley, oats	107	104	111	107	106	106
9	Fodder, hay, clover, straw	195	212	213	207	177	192

If we take, for example, the first line of this Table (HA), "all commodities," we get the following percentage equivalents, as given in (H), thus:—

Table (HA) 80, 87, 75, 81, 70, 80.

(H) 114, 124, 107, 115, 100, 109.

APPENDIX (I).

Examples of three of the Abstract Tables, Imports, Exports, &c., commenced in "Statistical Journal," 1857, and referred to in Section IV of preceding Paper.

Besides the three abstracts reprinted on the following pages (in the exact form employed in the *Statistical Journal*), there were abstracts of—

(4) Shipping; (5) Bullion;

(8) Railway Traffic;

(6) Revenue; (7) Banks;

(9) Foreign Exchanges.

App. (I *Contd.*)—[Reprinted from *Statistical Journal* for 1861].

(I.)

IMPORTS.—(United Kingdom.)—**First Eleven Months (January—November), 1860-59-58-57-56.**—*Computed Real Value (Ex-duty), at Port of Entry (and therefore including Freight and Importer's Profit), of Articles of Foreign and Colonial Merchandise Imported into United Kingdom.*

(First Eleven Months.) [000's omitted.] FOREIGN ARTICLES IMPORTED.		1860.	1859.	1858.	1857.	1856.
		£	£	£	£	£
RAW MATS.— <i>Textile, &c.</i>	Cotton Wool	31,567,	28,762,	26,346,	26,733,	23,948,
	Wool (Sheep's) ..	9,727,	8,791,	7,717,	8,653,	7,625,
	Silk	7,881,	8,904,	5,488,	12,168,	7,097,
	Flax	3,377,	3,463,	2,708,	3,363,	3,223,
	Hemp	1,509,	2,205,	1,520,	1,763,	1,696,
	Indigo	2,403,	1,888,	2,167,	2,030,	2,278,
		56,464,	54,013,	45,946,	54,710,	45,867,
" " <i>Various.</i>	Hides	2,801,	2,795,	2,005,	3,796,	2,271,
	Oils	3,334,	2,846,	2,979,	3,306,	3,337,
	Metals	3,442,	3,221,	3,191,	3,496,	3,207,
	Tallow	2,815,	2,547,	2,240,	2,713,	2,477,
	Timber	8,366,	7,002,	4,638,	6,469,	7,029,
		20,758,	18,411,	15,053,	19,960,	18,321,
" " <i>Agricltl.</i>	Guano	1,183,	720,	3,634,	2,217,	1,932,
	Seeds	2,697,	2,570,	2,005,	2,494,	2,554,
		3,880,	3,290,	5,639,	4,711,	4,486,
TROPICAL, &c., PRODUCE.	Tea	5,932,	4,510,	4,599,	4,300,	4,431,
	Coffee	2,175,	1,788,	1,505,	1,553,	1,370,
	Sugar & Molasses	11,722,	11,322,	11,868,	14,790,	10,568,
	Tobacco	984,	1,068,	1,522,	1,651,	1,403,
	Rice	778,	658,	1,475,	1,619,	1,625,
	Fruits	954,	950,	569,	1,030,	937,
	Wines	3,883,	2,320,	1,803,	3,584,	3,148,
	Spirits	1,769,	1,993,	1,059,	2,597,	1,827,
		28,197,	24,609,	24,400,	31,124,	25,309,
FOOD	Grain and Meal.	27,320,	16,558,	18,714,	17,228,	20,525,
	Provisions	5,036,	2,986,	2,880,	3,770,	4,291,
		32,356,	19,544,	21,594,	20,998,	24,816,
Remainder of Enumerated Articles		3,232,	2,966,	2,586,	3,547,	2,931,
TOTAL ENUMERATED IMPORTS		144,887,	122,833,	115,218,	135,050,	121,730,
Add for UNENUMERATED IMPORTS (say)		36,222,	30,708,	28,804,	33,762,	30,432,
TOTAL IMPORTS		181,109,	153,541,	144,022,	168,812,	152,162,

App. (I Contd.)—[Reprinted from *Statistical Journal* for 1861.]

(II.)

EXPORTS.—(United Kingdom.)—**Whole Years, 1860-59-58-57-56.**—*Declared Real Value, at Port of Shipment, of Articles of BRITISH and IRISH Produce and Manufactures Exported from United Kingdom.*

BRITISH PRODUCE, &c., EXPORTED. (Years.) [000's omitted.]		1860.	1859.	1858.	1857.	1856.
		£	£	£	£	£
MANFRES.—Textile.	Cotton Manufactures ..	42,138,	38,743,	33,402,	30,373,	30,204,
	" Yarn	9,875,	9,466,	9,753,	8,701,	8,029,
	Woollen Manufactures	12,164,	12,033,	9,778,	10,703,	9,500,
	" Yarn	3,844,	3,080,	2,954,	2,942,	2,890,
	Silk Manufactures	2,106,	2,145,	1,868,	2,573,	2,666,
	" Yarn	295,	207,	229,	317,	296,
	Linen Manufactures	4,802,	4,607,	4,124,	4,517,	4,888,
	" Yarn	1,801,	1,685,	1,739,	1,648,	1,366,
		77,025,	71,966,	63,667,	61,774,	59,839,
	Sewed. Apparel	2,157,	2,191,	1,944,	2,159,	1,816,
	Haberd. and Millnry.	4,011,	4,289,	3,474,	3,894,	3,638,
		6,168,	6,480,	5,418,	6,053,	5,454,
METALS, &c.	Hardware	3,772,	3,826,	3,280,	4,016,	3,748,
	Machinery	3,825,	3,701,	3,604,	3,884,	2,716,
	Iron	12,158,	12,327,	11,236,	13,406,	12,966,
	Copper and Brass	3,002,	2,600,	2,854,	3,124,	2,648,
	Lead and Tin	2,562,	2,552,	2,238,	2,516,	2,381,
	Coals and Culm	3,322,	3,266,	3,053,	3,211,	2,827,
		28,641,	28,272,	26,265,	30,157,	27,286,
Ceramic Manufcts.	Earthenware and Glass	2,094,	1,921,	1,721,	2,151,	1,916
Indigenous Mfrs. and Products.	Beer and Ale	1,864,	2,116,	1,852,	1,592,	1,455,
	Butter	633,	717,	541,	562,	694,
	Cheese	119,	138,	91,	114,	160,
	Candles	239,	188,	157,	280,	305,
	Salt	353,	254,	288,	337,	401,
	Spirits	287,	306,	207,	752,	998,
	Soda	963,	1,024,	813,	761,	608,
		4,463,	4,743,	3,949,	4,398,	4,621,
Various Manufcts.	Books, Printed	495,	478,	390,	422,	425,
	Furniture	222,	242,	258,	289,	208,
	Leather Manufactures	2,129,	1,998,	2,011,	2,289,	1,756,
	Soap	250,	226,	210,	240,	276,
	Plate and Watches	564,	495,	454,	545,	481,
	Stationery	750,	840,	804,	742,	720,
		4,410,	4,279,	4,127,	4,527,	3,866,
Remainder of Enumerated Articles		3,966,	3,366,	3,524,	3,806,	4,465,
Unenumerated Articles		9,076,	9,413,	7,913,	9,200,	8,377,
TOTAL EXPORTS		135,843,	130,440,	116,614,	122,066,	115,824,

App. (I Contd.)—[Reprinted from *Statistical Journal* for 1861.]

(III.)

Trade of United Kingdom, 1860-59-58.—Distribution of Exports from United Kingdom, according to the Declared Real Value of the Exports; and the Computed Real Value (Ex-duty) of Imports at Port of Entry, and therefore including Freight and Importer's Profit.

Merchandise (<i>excluding Gold and Silver</i>) Imported from, and Exported to, the following Foreign Countries, &c. [000's omitted.]	First Nine Months.					
	1860.		1859.		1858.	
	Imports from	Exports to	Imports from	Exports to	Imports from	Exports to
I.—FOREIGN COUNTRIES:	£	£	£	£	£	£
Northern Europe; viz., Russia, Sweden, Norway, Denmark & Iceland, & Heligoland	13,505,	3,964,	11,703,	4,712,	8,861,	3,377,
Central Europe; viz., Prussia, Germany, the Hanse Towns, Holland, and Belgium	17,977,	16,206,	14,436,	13,587,	12,747,	14,838,
Western Europe; viz., France, Portugal (with Azores, Madeira, &c.), and Spain (with Gibraltar and Canaries)	16,563,	7,814,	16,534,	6,684,	12,534,	7,148,
Southern Europe; viz., Italy, Austrian Empire, Greece, Ionian Islands, and Malta	3,293,	4,696,	2,983,	4,089,	2,355,	4,910,
Levant; viz., Turkey, with Wallachia and Moldavia, Syria and Palestine, and Egypt	10,763,	5,927,	8,306,	5,071,	6,105,	5,215,
Northern Africa; viz., Tripoli, Tunis, Algeria and Morocco	162,	154,	196,	118,	188,	91,
Western Africa	1,143,	695,	871,	512,	1,089,	505,
Eastern Africa; with African Ports on Red Sea, Aden, Arabia, Persia, Bourbon, and Kooria Moorla Islands	40,	81,	39,	263,	64,	45,
Indian Seas, Siam, Java, Sumatra, Philippines; other Islands	869,	1,391,	1,395,	2,310,	986,	1,787,
South Sea Islands	—	18,	—	40,	—	30,
China, including Hong Kong	6,803,	4,055,	6,556,	3,179,	5,542,	2,014,
United States of America	33,782,	16,235,	25,612,	17,426,	27,409,	10,189,
Mexico and Central America	451,	464,	398,	595,	258,	651,
Foreign West Indies, and Hayti	2,836,	1,753,	2,587,	1,927,	2,926,	1,896,
South America (Northern), New Granada, Venezuela, and Ecuador	504,	926,	477,	797,	327,	629,
" (Pacific), Peru, Bolivia, Chili, and Patagonia	3,577,	2,242,	2,624,	1,515,	5,021,	1,673,
" (Atlantic) Brazil, Uruguay, and Buenos Ayres	3,134,	5,101,	3,740,	4,082,	2,629,	3,932,
Whale Fisheries; Grnlnd., Davis' Straits, Southn. Whale Fishery, & Falkland Islands	92,	4,	80,	7,	153,	—
<i>Total—Foreign Countries</i>	15,514,	71,726,	98,537,	66,814,	89,194,	58,930,
II.—BRITISH POSSESSIONS:						
British India, Ceylon, and Singapore	12,558,	14,897,	10,805,	15,999,	10,687,	12,787,
Austral. Cols.—New South Wales and Victoria	4,086,	5,945,	3,643,	6,329,	3,218,	5,948,
" " So. Aus., W. Aus., Tasm., and N. Zealand	1,645,	1,413,	1,414,	1,320,	1,096,	1,672,
British North America	4,124,	3,441,	3,502,	3,384,	2,663,	2,971,
" W. Indies with Bth. Guiana & Honduras	5,060,	1,748,	4,581,	1,572,	5,325,	1,674,
Cape and Natal	1,124,	1,450,	1,065,	1,392,	1,000,	275,
Brit. W. Co. of Af., Ascension and St. Helena	112,	244,	149,	329,	177,	207,
Mauritius	1,272,	365,	1,365,	431,	1,113,	460,
Channel Islands	515,	495,	334,	467,	323,	387,
<i>Total—British Possessions</i>	30,546,	29,998,	26,858,	31,223,	25,602,	27,381,
General Total	£146,060,	101,724,	125,395,	98,037,	114,796,	86,311,

APPENDIX (K).

(K).—*Distress and Socialism in Germany 1874-78.*

THE following letter of the "Times" correspondent at Berlin dated the 14th May, 1878, described the industrial distress which has prevailed in Germany since 1873, and gives a lucid account of the rise and power of socialism.

"In a recent sketch delineating the growth of Socialism, I informed your readers that the thing hardly existed in this country twenty years ago. Though individual workmen might have been inoculated with the taint, their numbers were few, their faith conjectural, their action feeble and spasmodic. The change for the worse resulted from the coincidence of startling events with the life and action of an extraordinary man. While the nation were vehemently excited by the controversy between Crown and Parliament, consequent upon the irregular increase of the army, one *Dr. Lassalle* arose to stir up an agitation of his own. Very clever, his ambition exceeded his cleverness, and his pride topped them all. A liberal too haughty to co-operate with any of independent views, he profited by the prevailing ferment to rally the working men around him, and organise not so much a party as a political body-guard for himself. What unfitted him for the society of his equals made him the hero of the less educated. His bright *repartie*, his dramatic eloquence, and his dictatorial air carried all before them among the audiences whose ears he sought to tickle. To his brilliant sophisms the country is to a great extent indebted for the harvest it is reaping. Though the man was shot in a duel, his spirit survives.

"A few years after his death Socialistic agitation received an impulse from manhood suffrage. In 1866, when the German Parliament was first instituted, Prince Bismarck astonished the world by deciding for *extreme Liberalism* and making every German a voter. The Liberal party, staggered by the unexpected large-heartedness of a reputed Conservative, would not be outdone by their former adversary, and, albeit not *without a secret pang*, accepted the questionable gift. As to Prince Bismarck's intentions in bestowing the Nessus shirt, it may be divined from evidence given in a subsequent action against one of his then associates. In April, 1866, six months before the meeting of the first German Parliament, Privy Councillor Wagener called upon *Dr. Dühring*, a member of the Berlin University, to inquire in Count Bismarck's name whether he would like to draw up a memorial upon the best means of promoting the welfare of *working men at the public expense* and through the public authorities. The Government, Privy Councillor Wagener declared, intended to attempt *social reform*, and would be happy to have the learned doctor's advice. Despatch was necessary, Government wishing to counterbalance the weight and influence of the middle-class, which, perhaps, could be done by the establishment of productive associations on the Lassalle principle. *Dr. Dühring* composed the desired memorial which, being subsequently published with Wagener's name on the title-page, led to the action in which the above curious particulars were deposed. Coupling this disclosure with Prince Bismarck's repeated declarations against the *class franchise* prevailing in Prussia, which enabled the middle orders to return opposition Parliaments from 1861 to 1866, the motives of the versatile Premier in palming manhood suffrage upon his country are pretty clear. Nor is it to be wondered at that the Socialistic Press was leniently treated at a time when Lassalle principles were countenanced, and when, it must be owned, the avowed objects of the party were mildness itself in comparison with what they are aiming at now.

"Besides bringing on manhood suffrage, the establishment of German unity led to other changes, promoting the growth of Socialistic doctrines. The new Commonwealth having to be cemented by concessions to the Liberal Party, and Government not intending to increase the constitutional prerogatives of the people, economical reform was the order of the day. *In a couple of years* the laws regu-

lating commerce and trade were entirely *metamorphosed*. The country people were allowed to pour into the towns. The control exercised by masters over journeymen and apprentices was abrogated. The responsibility of masters and journeymen towards each other and towards manufacturers was practically annulled, imprisonment ceasing to be a legal penalty for breach of contract. To supplement the licence allowed the poorer classes by similar grants to the richer, the establishment and action of *joint stock companies* was freed from *Government* supervision. Had these measures been adopted gradually, as the people were fitted by moral and economical development, they might have acted beneficially. As it was, the suddenness and comprehensiveness of reform did as much harm as its abuse had inflicted in previous years.

"Upon a society seething under the excitement of this social revolution dropped the five milliards of the French indemnity. The indiscretion of the Government in sowing the money broadcast over the country, and the mischief entailed, have been described in their day. *The financial bacchanal which sent up the wages of the ordinary navy to 15s. a-day was succeeded by a commercial crisis, unabated after five years' duration. Bubble concerns and excessive competition, begotten of French gold, damaged smaller capitalists. Reckless extravagance and wanton strikes were replaced by involuntary idleness and pitiable destitution in whole sections of the working classes.* Just when a ray of light was breaking in upon the dark scene, the Russian must take it into his head to liberate the Slav and make the Teuton pay for his philanthropy by rude relapse into commercial straits. *Thirty Socialistic journals and twelve members of Parliament adhering to the like principles are the outcome of the situation.*

"If these are the financial and political roots from which the poisonous tree has sprung, its fruit could never have been swallowed with such avidity but for the vitiated state of the surrounding atmosphere. To pass muster any German movement requires the support of scientific men. National prejudice supposing erudition to imply intellect, only what is sanctioned by professors is popularly regarded as legitimate. Sad to say, academic countenance was amply afforded the aspiring Radicals. In the heaving period when Government was feeling its way towards the practicability of setting up '*Lassalle ateliers*,' a number of young University professors were appointed, eager to revise the property laws. Their activity has since been directed to the noble but somewhat difficult task of remodelling human society. They have analyzed existing deficiencies, propounded new theories, and vied with each other in combining fancy with research. Though few of them have gone so far as the professed Socialists, the profound-looking tones of recognised sages have immensely added to the confidence of the agitators. Worse still, it has shaken the self-reliance of a good many in the educated and middle classes, who formerly denounced Socialism as absurd, and had now to learn with dismay from the appointed guardians of truth, German Government professors, that a good deal might be said in its behalf after all. Thanks to these opposite agencies and the imperative throes of actual want, the language of Socialistic speakers and journals has lately assumed a tone bordering upon that of the Commune."

[To this passage may be added the following from the "Pall Mall Gazette," 3rd of May, 1878.]

"Fond as Germans are of indulging in Utopian dreams, and notwithstanding their tendency to submit to the dictation of professors, Socialism would have acquired little hold over even the least instructed class were it not for the *extreme poverty* of a large section of the population. This, let Prince Bismarck argue as he may, is the deepest root of Socialism among his countrymen. *In Germany the pressure of want is very great indeed; and it is being felt to a larger extent every day.* So long as this is the case Socialist agitators will find audiences, whatever may be the police regulations directed against them. This is perfectly well understood by intelligent Germans; and it is because it is so that they are looking forward to the future of their country with gloomy anticipations. For what prospect is there that, even if Germany were governed by the most

enlightened rulers, she would attain material prosperity? The cause of her backwardness in industry and commerce is not her financial policy; *it is her admired military system that depresses with crushing force every energy of the nation, and until it is removed or lightened there can be no considerable development of her immense commercial resources.* But in the present condition of Europe it is simply impossible for her to escape from the burden which has been imposed upon her. In the despised old times, when there was no Empire, but only a nominal Confederation, Germans enjoyed very little "glory;" they had to content themselves with seeing their country take a secondary place in Europe. This ignoble state of things had its compensations, for Germany had not then to be constantly on her guard against possible enemies; the various Governments could calmly take into consideration every proposal for the benefit of their subjects. It pleased Prince Bismarck, however, to enter upon a splendid career of ambition. He humbled Austria, nearly ruined France, and raised the HOHENZOLLEERN dynasty to the head of a united Germany, which included the long-coveted provinces of Alsace and Lorraine. The new Empire became, in short, the political centre of Europe. A magnificent destiny, no doubt; but it has not been without drawbacks. Germany has been forgiven by neither of her defeated rivals; and Russia regards her with a jealousy which, if Russian power is not broken, will one day become a peril of the first magnitude. Under these conditions it is essential to the existence of the Empire that it should maintain, not only unimpaired, but, if possible, in increased efficiency, the weapon by which its founders have achieved so many amazing triumphs. *Vast energies which in favourable circumstances would be expended in productive labour must be utilised in unproductive military exercises; and that they may be so utilised the peaceful forces of the country which are legitimately occupied must be harassed and hampered by continually increasing taxation.*

APPENDIX (L).

Negotiations concerning Commercial Treaties, 1860-78.

It is beyond the scope of the present paper to enter into a discussion of the commercial treaties which began with the famous French Treaty of 1860, negotiated (with the best intentions doubtless) by Mr. Gladstone, Mr. Cobden, and M. Chevalier. While desiring as ardently as any one the extension of free trade in France, I was from the first one of the comparatively small party who regarded the treaty of 1860 as an unfortunate departure from the sound principles of independent fiscal policy avowed by Sir Robert Peel in 1846; and steadily and most successfully maintained by Parliament and the country during the fourteen subsequent years (1846-60).

But as materials for a future discussion on statistical grounds of the whole subject of commercial treaties and reciprocity, I place on record here the following three documents numbered I, II, III.

I.

[Lord Derby on Treaties of Commerce and Reciprocity, from "Standard" of 27th January, 1878]:—

"A joint deputation of the *Associated Chambers of Commerce of the United Kingdom* and of the *Yorkshire Chamber of Commerce*, waited on Lord Derby at the Foreign Office, on 27th January, 1878. It was introduced by Mr. Sampson Lloyd, M.P., the other members of Parliament present being Mr. Whitwell,

Mr. Ripley, Mr. Wheelhouse, Mr. Stanhope, and Mr. Saunderson, and it consisted of the delegates of the various chambers of commerce, now holding their annual session in London.

"Lord Derby, who was accompanied by Mr. Robert Bourke, M.P., and the officials of the commercial department of the Foreign Office, received from Mr. Sampson Lloyd, who introduced the deputation, a Memorial which urged on her Majesty's Government the *inadvisability of signing treaties of commerce with nations which excluded Great Britain from the most favoured nation clause*; which declared that the action of several foreign and colonial Governments in insisting on imposing protective and in some cases prohibitory duties on the importation, was a subject requiring the earnest attention of the Government; which stated that in tariff B annexed to the new treaty of commerce betwixt France and Italy the duties on certain important manufactures appeared to have been arranged so as to press much more heavily on the 'heavy and low priced sorts' of such manufactures, which are chiefly made to the United Kingdom, than on the finer sorts, which are chiefly made in France; directing the attention of her Majesty's Government to the urgent necessity for steps being taken to obtain in any new treaty betwixt Great Britain and Italy more moderate duties on the British manufactures above referred to than those mentioned in the new treaty between France and Italy; and which finally urged the necessity of taking immediate action with the object of getting the recently promulgated Spanish tariff modified so as to place English goods and shipping on the same footing in regard to import duties as those of other nations.

"On these points the noble Lord was addressed by Mr. Behrens, of Bradford; Mr. Whitwell, M.P., Mr. Ripley, M.P., Mr. Molyneux, Mr. Plummer, of Newcastle; Mr. Grotian, of Hull; and Mr. Niel, of Greenock.

"Lord Derby, in reply, said—I can assure you, gentlemen, that there is no necessity for any apology on your part for taking up my time. We may have more urgent, and in some sense graver questions before us than this with which you deal; but there are very few subjects of so deep permanent importance to the welfare of the country as the interests of our foreign trade.

"I have heard with great satisfaction a remark which was made by the gentleman who spoke first, to the effect that while you are anxious to press upon us certain things which ought to be done or attempted to be done in regard to our commercial relations with foreign countries, you were yet ready to admit that no effort had been wanting on the part of those who are engaged in this office to forward your objects. I think I may venture to say that in the commercial department of the Foreign Office you will always find careful attention paid to your representations and remonstrances, and ready sympathy with the objects which you have in view.

"You have just now gone into various questions of detail, and I think you will hardly expect or desire that I should follow you through them at length. Indeed, I do not know that I have sufficiently accurate detailed knowledge upon some of the points involved to do so, and in any case it would occupy more time than you or I have to spare. If I were to look at the resolutions which have been put before me in a critical spirit, which is not at all my purpose, I might point out that there seems some little discrepancy between what is stated in the first and in that which succeeds it. Because you began by pressing upon us the inadvisability of signing treaties of commerce with foreign nations which do not give us the most favoured nation treatment—in which we entirely agree with you—and then in a further resolution you go on to contend with considerable force and truth that the most favoured nation treatment is by no means sufficient to meet all the objects which you have in view.

"As to not making treaties with nations which do not give us the most favoured nation treatment, I apprehend that on that point there is no difference of opinion. I do not believe that we have done so; certainly it is not our practice now. With regard to the other part of the question, namely, *the insufficiency of the most favoured nation treatment to secure all the advantages which you desire*, I am

bound in fairness to say I think you make out a very good case, but it is just one of those cases where it is very much easier to point out the evil which you wish to remedy than to apply as a remedy anything which would be efficacious, because, looking at it from a particular point of view, all these commercial treaties which are now entered into between foreign nations *are matters more or less of bargain and reciprocity.*

"I have had more than once before to point out to similar deputations in this room, that we are not in a position in which we can enter into transactions of that kind, because following a policy which no doubt is in the main an advantage, it has yet brought with it one particular inconvenience to which I have referred. We cannot go upon the principle of reciprocity, because we have given away freely what we had to give in the first instance, and now we have nothing virtually to give. That is in the one point of view, taking the ground of economical principles, the strength of our position; but if you come to a matter of bargain and negotiation with regard to the treatment on which our goods are to be admitted into foreign countries, that circumstance constitutes the weakness of our position. *We fully understand the inconveniences which arise from suspense in trading operations, and from those short arrangements of existing treaties which leave all parties in uncertainty as to what the future of things is going to be.* In the case of Italy we have made various endeavours, and we are still continuing them, to obtain more convenient arrangements than those which now exist. Communications are taking place on the subject, and the result of those communications will be supplied as soon as any conclusion is come to. A subject was raised as to mistakes in the value of returns made by the Board of Trade previous to the year 1874. That is a matter with which I am not familiar, and if it is desired that any steps should be taken upon it I presume it can only be for the purpose of correcting those alleged errors in the past, since it is admitted that they have ceased to exist. I shall be glad to receive any communications upon that subject, and to consider it together with the department more immediately concerned.

"There was another question of details raised by a gentleman who spoke towards the end of the proceedings, namely, as to excessive charges in the nature of *consular fees.* We have one case of that kind, though not in regard to the country which was referred to here; but we have one case of that kind now under the consideration of the Government, and we are taking the opinion of our legal advisers upon the matter as to how far it is justifiable to impose what is really an additional import duty in the form of consular fees.

"Now, I have been told that we ought not to negotiate any treaty unless the effect of that treaty is to operate in the direction of Free Trade, rather than that of protection. So far as that embodies the wishes of us all I entirely agree, but I am not quite sure that I understand the speaker as to what he thinks the *alternative* ought to be in the event of our not succeeding in negotiating a treaty in that direction. If he means to allow our treaty with the country concerned, whichever it may be, to fall into abeyance altogether, recollect in that case not only would you not enjoy any special advantage, but you could not reckon even upon the most favoured nation treatment. Undoubtedly it is our business to try for all we can get: but I do not think it follows that it is our duty to throw up negotiations altogether and place ourselves in a position of insecurity merely because we are not able to conclude an arrangement which is more satisfactory than the state of things which is our point of departure.

"Coming now to the question of Spain, which has been specially referred to, I am bound to say that I am entirely of your mind as to the attitude which the Spanish Government has taken up, for our tariff, taken as a whole, is more favourable to Spanish industry and commerce than anywhere in Europe, and yet, on account of one particular ground of difference between the two Governments, the Spanish Government insists on regarding it as one specially and exceptionally unfavourable. We cannot contend that what they are doing is contrary to treaty, or that they have not in strictness a right to take the line of conduct which they have taken. Unfortunately, however, our hands are tied in the matter, because I do not suppose

there is anybody in this room or out of it who would propose that we should now go to Parliament to adopt a *differential rate* of treatment for goods coming from different countries. I do not see, therefore, what we have within our power, except calling the matter—as we have done again and again—to the notice of the Spanish Government, and pointing out what we consider the inaccuracy and unfairness of the view which they take, and trusting to their sense of justice to see it in a different light.

“In the meantime we must recollect this, if we are free traders, which I need not say we all hold ourselves to be, that the disadvantage which Spain inflicts by this exceptional dealing upon our trade is a disadvantage not limited to one side. She is doing herself just as much harm as she is doing us, and that is a side of the question which it is our business to press. Now, gentlemen, I do not know if there is any further matter as to which you desire an answer, except, perhaps, as to the remark made by one gentleman, that we do not want other countries to precede us in getting a tariff when a tariff has to be negotiated between several countries, because in such a case the first negotiator has an advantage. We are quite aware of that; but whether we are the first in concluding a treaty or not, I need not tell you, it does not depend on our action in the matter, for it includes the action of the other Powers with which we have to deal.

“Mr. Sampson Lloyd briefly thanked the noble Lord for his courteous reception, and suggested that a closer inspection of the memorial would show the noble Lord that the discrepancy he had referred to did not really exist.”

II.

[From “Pall Mall Gazette,” 9th June, 1876.—*Free Trade and Protection in Germany, and Commercial Treaties.*]

“Our Berlin correspondent, writing on the 6th June, 1876, says:—The ‘*Deutsche Handelstag*,’ a committee of the *German Chambers of Commerce*, owing to the approaching expiration of the commercial treaties of Germany with other States, has called upon the chambers of commerce and similar corporations in Germany, numbering about 150, to reply to two questions previous to laying their wishes before Government:—1. What influence has the system of commercial treaties had on the development of commerce and industry? 2. To what tariff regulations in the interest of industry and trade, represented in the particular district, is the attention of Government especially to be drawn?

“From a tolerably accurate analysis of the answers given, which are shortly to be compiled and published, I gather the pleasing fact that not even one chamber of commerce has expressed itself in favour of the abolition of the existing treaties, or wished for a re-establishment of the former state of things—namely, that every State, according to its own judgment, should be allowed to introduce changes in its customs. But with regard to the present prominent questions—*Free trade or protective duties, ad valorem duties or otherwise*—opinions widely differ. It is nevertheless clear that not only the maritime towns and the principal centres of foreign commerce—Hamburg, Bremen, Stettin, Königsberg, Dantzic, Elbing, Kiel, Tilsit, Memel, Swinemünde, and others—wish for the maintenance of free trade, but that even inland commercial places, the most prominent of which are Leipzig, Cologne, and Magdeburg, equally place free trade in the foreground, and lay great stress on treaties of commerce as providing a means for combating protectionist tendencies in the interior.

“On the other side, however, and, indeed, chiefly in industrial districts, a large number of chambers wish for reciprocity as far as the productive powers of other States allow. In the reports of nearly all the chambers representing industrial districts, a deep depression may be discerned throughout, which not seldom breaks forth into complaints of regret at the exceeding *unfavourable state of affairs*, and often in more or less severe criticism on the financial policy pursued by Government. The opinion frequently recurs that the Imperial Government and Parliament have proceeded too rashly with their in all probability beneficial and

theoretically correct reforms, and that it would have been better to have allowed a longer period of preparation for the advantages aimed at.

"As concerns levying duties according to *value or weight*, we find on one side numerous complaints of annoyance, connected abroad, and principally in France, with *ad valorem* duties; and, on the other side, a wish for the introduction of such duties in the German Empire is expressed in the remark, that for certain industrial branches, especially for weaving, the present duty system prevailing in Germany by no means affords a protection, and is decidedly an impediment to the development of fine spinning.

"With especial reference to the *iron* department, the Chamber of Commerce of Remscheid is desirous for an unequivocal introduction of free trade, whereas other provinces, where iron is the staple trade, wish the abolition of the iron duties proposed next year to be still further deferred. Those chambers interested in weaving express themselves more or less in a protectionist spirit. The glass manufacturers experience no want of protection. The state of the leather trade is described as very depressed. Among linen traders no unity of opinion exists; one part of them (Hagen and Schweidnitz) demand *ad valorem* duties, another portion (Berlin, Stuttgart, Königsberg, Reutlingen) are anxious for reduction of duties.

"The brandy distillers are quite satisfied with their experiences since the existence of the treaties of commerce, and complain only of difficulties arising from troublesome tax prescriptions on exportation. Sugar merchants complain of French export premiums. Silk merchants wish for free trade, and merely for the levying of a high tax on velvets and velvet goods. Thread manufacturers are displeased with the tariffs of the commercial treaties, and consider the reduction which took place on their conclusion as precipitate.

"The examination of all the opinions and wishes expressed by the chambers of commerce in detail will be a laborious but necessary task of the Imperial Government. An equalisation of the different proposals seems the more possible as they are based on the whole on the urgency of renewing the existing treaties. The German chambers of commerce entertain on this subject the same opinion as the representatives of French commerce and industry, who all, with the exception of Rouen, at the demand of their Government, expressed a desire for the renewal of the treaties of commerce."

III.

[Negotiations with France for Treaties of Commerce, 1877.]

The famous commercial treaty with France negotiated in the course of 1859, between the Emperor Napoleon III and M. Michel Chevalier on the part of France, and Mr. Cobden and Mr. Gladstone on the part of England, was in three parts, dated 23rd January, 12th October, and 16th November, 1860—the delay in the latter treaties arising from the complexity of the negotiations on technical points. The treaty was rendered possible on the part of France by the accident that the power of making treaties had been after the *coup d'état* of 1851 reserved to the Emperor independent of the Senate or the Assembly. The essence of the treaty was that during the ten years 1860-70, France undertook to admit certain English goods, notably cotton manufactures, at reduced rates; and England undertook to reduce and not to alter for the ten years 1860-70, the duties on French wines, silks, brandies, &c., and further not to place any export duty on coal. The treaty was never more than coldly acquiesced in on this side of the Channel. It was felt to be a step backwards, and a sort of trick played by imperial autocracy on the French people.

The treaty expired in 1870, and early in that year—that is before the Franco-German war, which commenced in July, 1870—inquiries were set on foot in both countries regarding its renewal. The French manufacturers opposed all renewal, because they said that the small amount of free trade rendered possible by the treaty had seriously injured them. The English cotton manufacturers objected to

renew the treaty, because practically it had not done them any good; and on 20th April, 1870, the Manchester Chamber of Commerce issued a Statement, in which they showed (1) That even at the high price of raw cotton which ruled during the American war 1861-65, the French duties under the treaty on English cottons were 8 to 10 per cent.; and with the lower prices of 1866-70 were 20 to 30 per cent. (2) That the treaty "neither has afforded, nor is likely to afford opportunity for the favourable export of English cotton manufactures to France," (3) That so far from the English cotton trade having been made prosperous by the treaty, it was a fact that in 1869, the number of failures in Lancashire was excessive.

The German war put an end to all further negotiations till 1872, when M. Thiers was president, and strongly inclined to give effect to his well known anti-free trade sentiments.

The English opposition again came chiefly from Manchester, led by Mr. Hugh Mason, an eminent local manufacturer. On one point all parties in this country were agreed, viz.: That under no circumstances could England consent to renew those sections of the treaty of 1860 which restrained Parliament from altering as it pleased duties of imports or exports on any class of articles. It had been found also that the favoured nation clause led to endless difficulties and contentions. In 1872 the very high price of coal in this country had revived the proposals for placing an export duty on the article (as Sir Robert Peel actually did in 1842, although he took it off in 1846), but it was found that since the 1860 treaty no export duty could be put on coal sent to France till March, 1873. It appeared also that we had a treaty with the Zollverein (now become the German Empire), which forbade any export duty on coal till 1877. Treaties with Austria placed us under similar restraints; so that positively by reason of commercial treaties of one sort or another, we had ceased to be master of our own fiscal policy.

At length on 5th November, 1872, a sort of supplemental treaty was concluded with France, terminable on either side by giving twelve months' notice. As an illustration of the complexity of these treaty terminations, it may be mentioned that the technical schedules of November, 1872, extend to more than five hundred entries.

In 1876-77 there were again efforts on the part of several public men who had been friends of Mr. Cobden to enlarge and amend the treaty of 1872, and the proceedings went so far as the sending of a sort of Commission of Inquiry to Paris in the course of 1876. But weeks and months elapsed, until the public got tired, and began to laugh at the barrenness of the whole affair.

It was under such circumstances that the following letter appeared in the "Economist" of 28th April, 1877:—

"SIR,—It is tolerably clear from the elaborate article in the 'Daily News' of the 23rd April, 1877, that the party of English diplomatists who went to Paris some weeks ago, to negotiate a revised and extended commercial treaty with France, will have to come back as they went. We are told that the 'negotiations have advanced so slowly, that they have hardly got beyond the state of crude, or, we might say, tentative proposals,' and an appeal is made to any person on either side of the Channel to offer 'suggestions likely to lead the diplomatists engaged in this business to sound conclusions.' I beg respectfully to respond to this invitation, by urging that the whole proceeding is a mistake—that treaties of commerce and free trade are contradictory terms and antagonistic principles—and that the best and most dignified, as well as the profitable and prudent plan, will be for this country to revert again to the policy which—according to the testimony of a most unexceptional witness, whom I will now produce—it followed with so much success before the extolled epoch and example of 1860.

"When the Russian war came to an end early in 1856, the Manchester Chamber of Commerce presented a memorial to Lord Clarendon, asking him at the approaching Congress in Paris to urge upon the European Powers the adoption of free trade measures, and Mr. Hadfield, the member for Sheffield, wrote to Mr. Gladstone, asking him to support the memorial. On 14th February, 1856, Mr. Gladstone sent the following public reply to Mr. Hadfield:—

“ ‘ I strongly sympathise with the feeling which has prompted the Chamber of Commerce at Manchester to present a memorial to Lord Clarendon, with a view to his using his influence at the approaching Congress, in furtherance of commercial traders in Europe I feel bound, however, to point out a danger, the existence of which I know too well from experience.

“ ‘ Between 1841 and 1845 I held office at the Board of Trade, and this was the period during which England was most actively engaged in the endeavour to negotiate with the principal States of the civilised world treaties for the reciprocal reduction of duties on imports. The task was plied on our side with sufficient zeal, *but in every case we failed.* I am sorry to add my opinion that we did more than fail. The whole operation seemed to place us in a false position. Its tendency was to lead countries to regard with jealousy and suspicion, as boons to foreigners, alterations in their laws, which, though doubtless of advantage to foreigners, would have been of far greater advantage to their own inhabitants.

“ ‘ *England, fearing that she could make no progress in this direction, took her own course*, struck rapid and decisive blows at the system of protection, and reduced, as far as the exigencies of the public service could permit, the very high duties which in many cases she maintained simply for purposes of revenue, upon articles which had no domestic produce to compete with. *While our reasonings had done nothing, or less than nothing, our example effected something at least, if less than we could desire* When we endeavoured to make treaties we were constantly obstructed by the idea prevailing abroad that the reduction of tariffs would redound to our advantage only, and would be detrimental to other countries. Politicians and speculators continued to propagate this idea. *It was certainly shaken when the world saw us expose our own protected interests to competition without making a condition of corresponding relaxations elsewhere; but I am fearful lest it should again make head if we too actively employ political influence in urging the adoption of measures for the relaxation of foreign tariffs.*’

“ Now, this letter is the substance of my case. The facts are undoubted, and the witness who testifies to them speaks with exact information and personal knowledge. We did no good, but positive harm, during the six years of negotiation. Foreign countries naturally suspected us of some astutely selfish purpose when we hunted them up with diplomatists and experts, and pestered them with essays and statistics. But after 1846, when we showed in actual practice and on the largest scale that we had mastered the fundamental axiom of free trade, namely, that foreign trade is beneficial by what it *brings in*, that is, by the imports, and only in a secondary degree by what it *takes out*, that is, the exports, we at once produced an impression on the most sceptical of our neighbours. For fourteen years, from 1846 to 1860, we pursued this simple and efficacious policy. We cut down our own tariff to the very simplest form consistent with revenue requirements, and we left the rest of the world to speculate at their leisure upon what they called our folly, and to wonder at the astounding growth and diversity of our commerce in spite of that folly.

“ Our imports went on increasing. We laughed at the exploded notions of an adverse balance of trade, as well we might, for the experience of every year confuted it. It was quite certain that foreigners, whether protectionists or the reverse, did not send us their goods for nothing. It would have been all the better for us if they had. It was also quite certain that we should not buy the goods unless we made a profit by them, all hostile tariffs notwithstanding, and so all parties were content. We had the trade and the imports. The foreigners had their tariffs and their diplomacy, their protected interests, and the incessant complaints of those interests that they were not protected enough.

“ In an unpropitious hour it entered into the head of Mr. Cobden that the French Emperor, by virtue of his large prerogative of treaty making, might steal a march on science and facts by putting into the form of a wonderful treaty a measure of customs reform which had become imperative upon the Imperial Government for reasons of revenue and trade. This country had little or nothing to give in return, but we generously assisted the device by entering into stipulations

which for ten years imposed upon us treaty restraints in dealing with certain of our customs duties. In France the reduction of certain portions of its tariff was an unmixed benefit, because it encouraged the imports. For ourselves, our function was little more than that of a missionary society for the propagation of the true economical faith in foreign parts.

"But the benevolence of the intention did not prevent the evil consequences of the revival of a mistaken policy. England, which for fourteen years had reached by most effectual example, had now retreated upon the commoner, easier, and cheaper arts of unctuous exhortation and meddling diplomacy. Treaties of commerce became the fashion, and it is true that for the ten years following 1860 we spent more time and money in making commercial treaties, or in trying to make them, than in all the other outside operations of the Board of Trade, and with results which have been either unsuccessful or mischievous.

"We have now arrived at a complete deadlock in nearly every country. We have failed in the United States; we have failed in Germany, where Herr Camphausen, hitherto a scientific free trader, caring only for the imports, has been driven by our bad example chiefly, to humour his protectionist colleagues by falling back upon concessions and reciprocity.

"Furthermore, the 'Daily News' naïvely says that even in France the treaty panacea has been worked so hard that it has become perplexing and unintelligible. 'The present Government,' we are told, 'has found itself perplexed by the multitude of existing treaties of different dates, containing different provisions, and fixing different tariffs with various countries, in accordance with circumstances which have now ceased to exist, or which in certain cases have assumed proportions which require special legislation, as in some of the commercial relations between France and Italy having peculiar reference to the wine trade. But it is obvious, should France renew her treaty with England, and grant terms as favourable as are proposed, every other nation, in times of peace and amity with the French people, will immediately set about negotiating for the same conditions.' And so the French Government, in the exercise of their common sense, have very wisely put an end to the entire logomachy—for logomachy it is.

"I have always considered that the incessant boasting of the prodigious increase of trade, which was alleged to have risen from the French treaty of 1860, was greatly beyond the actual facts. The recent appearance of the third number of the statistical abstract relating to foreign countries enables us to test the effect of the treaty from the French side of the question, by taking the returns of the French Custom House for the years from 1860 to 1875.

"In the following table I give the values of the trade for the first three years (1861-63) after the treaty; and for the last three years for which figures are available (1873-75):—

France (as per French Custom House Returns). Total Value of IMPORTS from, and EXPORTS to, United Kingdom in the Three Years 1861-63 and 1873-75.

Periods of Years.	United Kingdom.		
	Imports from.	Exports to.	Exports more.
<i>Three Years' Totals—</i>	Mln. £	Mln. £	Mln. £
1861-63	62	75	13
'73-75	72	120	48
<i>Yearly Average—</i>			
1861-63	21	25	4
'73-75	24	40	16

"These are curious figures. First, it appears that in fifteen years the treaty has only raised the *annual* imports into France from the United Kingdom from 21 to 24 millions sterling—no great matter certainly; but, on the other hand, our own genuine free trade policy of getting rid of all customs duties as far as possible, regardless of treaties, has raised the *exports* from France to United Kingdom from 25 to 40 millions—a very respectable achievement. And this is precisely the aspect of the case which is overlooked or misunderstood. It is true that we have in fifteen years nearly doubled our imports from France—not because of the treaty, but because we have opened our ports free of duty to every kind of French produce, except wine and brandy, and have left the balance against us to settle itself as such balances always have settled, and always will settle themselves, with ease and profit, by the process of international exchange.

"But if these are the plain undeniable facts, according to the French official records, why should we impair their force by suspicious overtures for a treaty more elaborate than the last? The best missionaries we can possibly have are the French producers, who have found us customers for forty instead of twenty-five millions worth of French goods every year. These people can have no desire to cut down the English trade, and we may depend upon it that, if we leave them alone, they will be more than a match for the comparatively small number of French manufacturers who fancy they are injured by the three millions extra of imports from England.

"It is distressing that at this time of day, and after the triumphant experience of the last thirty years, it should be necessary to remind any English Government, or any body of English legislators, or any English Chamber of Commerce, that trade between one country and another, any more than trade between one town and another, or one street and another, cannot be made matter of treaty at all. The very utmost that treaties can do is to provide reciprocal regulations for the safety and convenience of foreign merchants, and for the speedy settlement of disputed demands that may arise. The constant agitation for treaties having a large scope—the constant appeal to experts to settle details of quality and texture, which, if true to-day will be false to-morrow,—the constant pestering of cabinets and ministers with proposals for special clauses of one sort or the other,—are puerile and pernicious; puerile, because on grounds of science and experience demonstrably so foolish as to be fit only for the fables of the nursery; pernicious, because they turn away the attention of the mercantile classes from pursuing with all their energy the only path which can lead to extending and profitable trade—that is to say, the production of commodities which by reason of cheapness, usefulness, quality, and taste, are able to command an ever-expanding market.

"Let the party of excellent and honourable men whom we have foolishly sent to Paris, take a speedy and graceful farewell of their polite antagonists, and let Lord Derby—than whom no one has a better right to perform the duty—intimate once for all to the French and all other Governments, that like the age of ruins, the age of commercial treaties is past.

W. N.

"London, 28th April, 1877."

APPENDIX (M).

Protective Duties in the United States.

The following passage occurs in an excellent article in the May, 1878, number, of the New York periodical, "The Atlantic Monthly" under the title "Who Pays Protective Duties?"

"The examination must not be confined to any selected narrow fields of industrial employment. American labour is not limited to special pursuits: it

comprehends all the vocations which utilise and require the brain or muscle, skill or toil, of our people.

"All employments, considered in their relations to foreign competition, may be classified into three divisions; one of these encounters foreign competition in the domestic market, another in the foreign market, while the third is unaffected by it in either.

"In the first division will be found the *so-called protected industries*, which meet foreign products similar to their own in the home markets. In the second are the producers of *exportable commodities* exchanged abroad for foreign products. The third includes those engaged in *local trades* and industries, inland transportation, personal service, and professions. Foreign and domestic labour cannot come in competition unless engaged in producing similar articles capable of transportation. The great body of workers whose pursuits require *personal or local service*, such as builders of all kinds, teachers, merchants, shoemakers, tailors, blacksmiths, clerks, porters, and house servants, and the long list of occupations and professions necessary for the business and convenience of every community, can have no direct foreign competition. They neither require protection nor can be protected, unless against foreign immigration. Neither can those engaged in producing articles exported in whole or in part be protected against competition in foreign markets. The competition abroad determines the price of the exported surplus, and lessens the price at home. The serfs of Russia, the peasantry of France, the coolies of India, compete with the American labourer, farmer, and planter, at the cattle, corn, and cotton exchanges of Great Britain and Europe. The benefits of protection, therefore, directly accrue to none but those engaged in the few industries meeting foreign competition, while the burdens imposed upon consumers must fall upon all classes, though not in equal degree.

"The inequality and favouritism of this discrimination are exhibited by the Census returns. There are three leading manufacturing industries which are demanding and now receiving protection to a greater or less extent. They numbered in 1870, as shown by the Census reports:—

1870. Cotton manufactures	135,369	number employed.
„ Iron and steel.....	189,982	„
„ Woollens and carpets.....	105,071	„
Total	380,422	„

"Contrast their number with these *non-protected employments*:—

	Number.
1870. Blacksmiths	141,774
„ Carpenters and joiners	344,596
„ Boot and shoemakers	171,125
„ Railroad employes	154,027
„ Draymen, hackmen, and teamsters	120,756
„ Clerks in stores	222,540
„ Teachers	126,822
„ Masons	89,710
„ Painters	85,123
„ Carriage and wagon makers	42,000
Total	1,448,434

"Take the aggregate of the whole number engaged in *metals and textile fabrics*, and note how small a proportion of all occupations are employed in these industries. The Census again gives us their relative numbers as follows:—

1870.	No. Employed.	Percentage.
All occupations	12,505,923	—
Total agriculture	5,922,471	0·47
Total cotton, iron, steel, woollen, and worsted manufactures	380,422	0·03

"In every division of labour each *Consumer* will, if possible, fully compensate himself for increased cost of material or expenses by a higher price for the product of his own labour; competition from those who are exempt from such burden will, however, prevent this, for the latter can afford to sell their products at the old price. The farmer and the cotton grower in vain attempt to reimburse themselves for the greater cost of their implements, clothing, and supplies. The general price in the markets of the world must determine the price of their cotton, grain, beef, pork, and other exports, and in part the value of the coarser farm products converted into these articles. They cannot throw off their tariff tax.

"In the early discussions it was admitted by intelligent and ingenious protectionists that the effect and purpose of protective duties were to give the domestic manufacturer a better price, and that the consumer of dutiable imports paid the duty imposed by a protective tariff. But the system was defended on the ground that manufacturers needed aid *while establishing their business, and then would take care of themselves and defy competition*. This defence and these assurances were repeated from generation to generation. Of late, however, it has been claimed for protection that it is not a tax upon one industry for the benefit of another industry; for its design is said to impose taxes upon *foreign producers* in order that domestic consumers may obtain cheaper commodities, and this it is said is its effect.

"If this be true, the *disinterested philanthropy* of manufacturers is most remarkable. Since foreign producers pay the tariff tax, the manufacturers can secure no better prices thereby, and have no pecuniary interest in the maintenance of the duty; indeed, as through the tariff tax domestic consumers obtain cheaper commodities, it must be the manufacturers' advantage to have no duty so that commodities will not thereby be cheapened and their profits lessened by the lower price. But, either too generous to consider their own good, or ignorant of this great truth, they rush to Congress, and protest that the duties shall not be lowered on products similar to their own and that there shall be no increase of duty on the material which they must use. If high duties lower prices, they necessarily lower profits. Yet the tabulated returns of dividends upon capital engaged in manufactures show that compared by *tariff periods they increase and diminish with the rise and fall of tariff duties*. If the consumer pays an enhanced price upon the import, the manufacturer can get a higher price for the similar domestic product, and consequently greater profits and higher dividends. The latter is the actual and logical result of higher prices.

"Some years ago a table was published, and by annual appendices has been continued, showing the *yearly dividends of New England manufacturing companies*.

Grouped by tariff periods, they show the following average annual dividends:—

Year.	Average Duty on Dutiable Imports.	Average Dividends for Periods.	Remarks.
1832.....	Per cent. 33·8	Per cent. 13·	
'32-34	32·8	11·40	Compromise tariff reduction one-tenth biennially to 1841, thereafter 20 per cent.
'35-36	34·3	11·75	
'37-38	31·6	7·25	
'39-40	30·2	6·87	
'41-42	26·6	5·	
'43-46	32·5	12·44	High tariff.
'47-57	24·1	6·36	Low tariff.
'58-61	19·0	6·71	Low tariff, 24 per cent.
'62-72	44·27	12·10	High tariff.
'73-75	39·20	8·30	10 per cent. reduction.

"With reduction of duties profits diminish, increasing with the return of higher rates. The slender store of wealth of the infant industries our fathers consented to aid has swollen to nearly 500 million dollars (100 million pounds) of invested capital. The census of 1870 gave as the value of the gross capital in

1870. Iron and iron manufactures 40 mln. £.
 „ Textiles 53 „

"To the demand for an abatement of the high tariff duties the consumer is answered, You do not pay them, and you have no grievance. If these industries have grown strong and rich, it is not from your contributions. It is the foreign producer who pays the duty. He keeps up the revenues and relieves you from taxation. The duty is a tax upon him, and not upon you. He ought to pay for the privilege of selling his goods in our markets."

The following passage occurs in the leading American newspaper, the "New York Bulletin" (May, 1878), and illustrates strongly the kind of economic blunders which aggravate the American distress.

"The Philadelphia 'Record' asks, as if in a fit of despair:—'Is there no statesmanship among our legislators, that an outlet is not made for the many youths now wasting their time? Can no provision be made for mechanical schools or agricultural colleges? If not, our prisons and houses of correction may be filled with the material which, under better and more humane circumstances, would give us the best citizens, men who would be ornaments to society and their country.'

"If 'statesmanship' could devise ways and means of removing the obstructions that 'legislation' has heretofore thrown in the way of industrial development, we are inclined to think we should have all the 'outlet' that is necessary for the present 'waste of time.' Government provision for 'mechanical schools or agri-

cultural colleges' would not reach the evils. *We have altogether too much Government meddling and muddling with questions of this character already, from the enactment of eight-hour laws to the attempt to fix the price of labour by statute, and no good can come of any additional experiments of the kind.* The best school and college is the mechanic's or artisan's shop or manufactory, and nothing is needed to bring about a better state of things but (first) the correction of the foolish, if popular, notion that somehow it is less 'respectable' to be a skilful mechanic than almost anything else, and (secondly) the removal of the impediments which Trade Unions have thrown in the way of the apprentice system. Under these combined influences—the popular prejudice and the trades-union dictation—a generation of drones, tramps and adventurers have grown up among us, with no visible means of earning a livelihood, save by their wits; and it is no wonder, therefore, that the prisons and houses of correction are overrun. There has been, under the pressure of the times, some relaxation of the rule limiting the number of apprenticeships in particular trades; but the rule ought to be abolished altogether, in spirit as well as in letter. We must get back to our habits of trained industry and thorough, painstaking work, and then we shall not be obliged, as we often are as things stand at present, to import from Germany and other European countries journeymen who know enough of their craft to be good shoemakers, or tailors, or what not.

"One of the most serious hindrances to the return of better times is the vast number of *young men* who are adrift in the large cities who can get nothing to do, simply because they can do nothing that anybody wants done. They have not, in consequence of the influences we have alluded to, acquired skill in any handicraft or avocation which would impart to their industry a positive market value. Many of this class of persons found employment in stores as clerks and in other occupations where skilled labour, in the ordinary sense, was not a prerequisite, and as long as business was prosperous they got along well enough; but with the sweeping reverses which followed the path of the panic, their services had to be dispensed with. Not only this city, but every other community abounds with young men who have thus been turned adrift, so that at this moment an advertisement in a city journal for a clerk or for some person to make himself generally useful is answered, it might be said, by a mass meeting. The condition of this class is pitiable in the extreme, but their experiences should admonish the generation that is to succeed them that in the battle of life it will not do to trust to mere chance. Chance may gain a point occasionally, but it is only the trained, well-disciplined soldier that is sure of his ground and can fight to advantage."

POSTSCRIPT

TO

Paper on Foreign Trade, United Kingdom, 1856-77.

Attention is requested to the following Postscript, amending Table XV at p. 221 *ante*.

In the course of the discussion on the foregoing Paper at the two meetings of the Society (on 21st May, and 18th June, 1878), it was suggested by Mr. Stephen Bourne (of the statistical office of the Custom House), in the course of an able speech, that the Table XV (p. 221 *ante*) would be more complete if it set forth among the exports from United Kingdom, not only the articles of British produce, but also the re-exported articles of foreign and colonial produce.

I admit at once the propriety of this suggestion; and in the following Table XVA, I give effect to it.

I would refer here to the paper by Mr. S. Bourne himself, on "the Preponderance of Imports over Exports in the Trade of the United Kingdom," printed in *Statistical Journal*, vol. xl, 1877. That paper contains much valuable information—information the more valuable, considering the exceptional knowledge possessed by Mr Bourne as the result of his high official position.

The following Table XVA, must be read in connection with, and as an amended form of, Table XV, p. 221.

TABLE XVA (p. 221) **Corrected.**—*Corrected Summary of Imports and Exports of Merchandise only (Average Annual Declared Values), United Kingdom, Twenty-Two Years 1856-77.*

[The *Imports* are made less by 5 per cent. for charges, &c., accruing in and due to United Kingdom, and the *Exports* are made more by 10 per cent. for same reason. The *Exports* are British produce, &c.; and also Foreign and Colonial produce, &c., re-exported.]

1	2	3 4 5			6 7 8 9				10	11 12 13			14
Num- ber.	Periods of Years.	Imports.			Exports.				Cor- rected Excess of Imports (5, 9).	Per Cent. of Exports to Imports.			Declared Values, Excess of Imports (3, 6, 7).
		Declared Values.	Less 5 per Cent.	Cor- rected Imports.	Declared Value.		Add 10 per Cent.	Cor- rected Exports.		Declared Value.		Cor- rected Values (5, 9).	
					British Pro- duce.	Foreign and Colonial Produce.				British Produce (3, 6).	Foreign and Colonial Produce (3, 7).		
3	1877-75	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Per cent.	Per cent.	Per cent.	Mln. £
5	'74-70	380	19	361	210	57	27	294	67	55	15	81	113
		350	17	333	240	55	30	325	8	70	16	100	55
8	Avg.	365	18	347	225	56	28	310	37	61	16	91	84
5	1869-65	286	14	272	180	49	23	252	20	63	15	92	57
5	'64-60	235	11	224	140	42	18	200	24	59	17	89	53
4	'59-56	175	8	168	121	24	13	148	20	69	13	88	30
14	Avg.	234	12	223	150	40	18	200	22	66	15	90	46
8	Totals	2,920	144	2,776	1,800	450	224	2,470	306	61	16	91	83
14	'69-56	3,276	151	3,124	2,100	550	252	2,900	224	66	15	90	46
22	Totals	6,196	295	5,900	3,900	1,000	476	5,370	580	—	—	—	—
22	Avg.	282	13	268	177	45	20	245	25	64	16	90	64

Note.—The Declared Values of the official tables are given above :—in col. 3, Imports; cols. 6 and 7, Exports of British Produce and Foreign and Colonial Produce. In cols. 4 and 8 are given the *Corrections* required in the Declared Values. In col. 10 is given the *Excess of Imports* which appears after making those corrections, and after adding to the Exports of British Produce (col. 6), the Exports of Foreign and Colonial Produce (col. 7). That Excess of Imports, on the average of the twenty-two years, is 25 mln. £ per annum, or 530 mln. £ as a total.

Several observations arise on this amended exhibition of the corrected declared values for the twenty-two years.

Instead of an excess of Imports of say 70 mln. £ *per annum* :—or a total of 1,610 mln. £ :—as at p. 221 :—the excess is reduced to 25 mln. £ *per annum* :—or a total of 530 mln. £ :—and if from this total we deduct further 100 mln. £ for the excess of imports of bullion, the total is reduced to 430 mln. £ of merchandise, or say 20 mln. £ *per annum*.

In Mr. Bourne's paper quoted above, a calculation is given of the excess of imports of *merchandise* for the nineteen years 1858-76, the results of which correspond very closely with this figure of 20 mlns. for the twenty-two years 1856-77.

A singular feature in XVA, is that (col. 9) the excess of Imports for the five years 1874-70 is only 8 mln. £ *per annum* :—or a total of 40 mln. £. This is manifestly a result entirely exceptional, and arose probably from advances and investments abroad during the excited years 1871-74 wholly beyond former example.

In the three years 1877-75, the excess of Imports is 67 mln. £ *per annum* :—or a total of 201 mln. £; and this excess is manifestly the natural correction of the wholly abnormal figures of the previous five years 1874-70.

The following abstract, Table XVB, will exhibit in an easier way the more important results of the amended Table XVA official :—

(XVB).—*Abstract of Table XVA (p. 280). Imports and Exports of Merchandise, United Kingdom, Annual Averages, Twenty-Two Years 1877-56.*

1		2	3 4 5			6	7 8 9		
Years.		Imports per Annum, Corrected.	Exports per Annum, Corrected.			Corrected Excess of Imports per Annum.	Corrected per Cent. of Exports to Imports.		
			British.	Foreign and Colonial.	Total.		British Produce (2, 3).	Foreign and Colonial Produce (2, 4).	Total.
3	1877-75 '74-70	Mln. £ 361	Mln. £ 231	Mln. £ 63	Mln. £ 294	Mln. £ 67	Per cent. 64	Per cent. 17	Per cent. 81
5		333	264	61	325	8	79	21	100
8		347	244	66	310	37	72	19	91
5	1869-65 '64-60 '59-51	272	198	54	252	20	72	20	92
5		224	154	46	200	24	70	19	89
4		168	133	23	148	20	78	10	88
14		223	160	40	200	22	74	16	90
22	Avge.	268	195	50	245	25	73	17	90

By the aid of these figures, *corrected* both as regards Exports and Imports by the introduction of Charges, and by the inclusion of the Re-Exports of Foreign and Colonial Produce, we still see that the *series* of figures representing the average annual fluctuations of the five periods into which the twenty-two

years are divided show considerable changes. Thus starting from 1859-56, the percentage proportion to Imports has been for the Exports of—

British Produce	78,	70,	72,	79,	64	per cent.
Foreign and Colonial Re-Exports....	10,	19,	20,	21,	17	„

The growing command of the United Kingdom over the Re-Export Trade of Foreign and Colonial articles is very gratifying, as showing that the absence of duties and the facilities of free ports render this country every year more entirely the central market of the world. The Re-Exports were 25 mln. £ in 1859-56;—and 63 mln. £, or nearly three times more, in 1877-75.

The further evidence now collected by means of these enlarged and amended tables will be generally allowed, I think, to confirm and justify in many ways the general argument and the detailed deductions of the preceding Paper.

It must be carefully borne in mind that in *all* the tables of figures in this Paper, from one end to the other, no attempt has been made to state statistically the amount of transactions, whether of Import or Export, of the nature of transfers of securities to bearer or otherwise, cable transfers of bullion, &c. The real position of the Foreign Trade of this or any other country can only be learnt from the course of the Foreign Exchanges. Speaking generally, it may be said with safety that (except on certain well known occasions, and arising from exceptional causes equally understood) the Foreign Exchanges have been in favour of this country during the twenty-two years 1856-77; and at some future time I may, perhaps, extend the inquiry to this particular topic.

DISCUSSION *on* MR. NEWMARCH'S PAPER.

MR. MUNDELLA, M.P., said that Mr. Newmarch was always lucid, forcible and interesting. He had heard many good things from him, but perhaps he had never produced anything of greater service to the community than the paper he had read that night. He was doubtful whether anybody would have the courage, after the force and demonstration displayed by Mr. Newmarch in his arguments, to get up and advocate the exploded doctrines of reciprocity. If so, he was quite sure that there would be many gentlemen present who would be ready to answer them. He believed with Mr. Newmarch that the depression of the last three or four years was fully accounted for by the causes set forth in his paper. Any one acquainted with what was going on in manufacturing countries, would agree with him that those countries who attempted to be our rivals, and who attempted to build a Chinese wall of import duties around this country, were the countries which, at this moment, were plunged into the deepest distress. They would all regret what was then going on in Lancashire. The suffering was very great, and no doubt the manufacturers had been working at great disadvantages, without profit, and in some instances at a loss for some months past. The condition of the American cotton manufacture was quite deplorable. The latest news from Massachusetts revealed a state of things which, in the worst periods of depression in this country, had never been known. America had carried on cotton manufactures for a hundred years; and, stimulated by her high duties, she had increased her power of production beyond her power of consumption, and she had, as a matter of necessity, exported in order to raise money in the *dépôt* market on the best terms she could raise it. During the past year about 2,000,000*l.* worth of cotton goods had been exported. It was really sad that after all the wonderful results of free trade in this country, other countries should still be found clinging to these exploded doctrines, and above all, that the colonies should be so foolish, as some of them had been found to be, in their determination to be manufacturers at any sacrifice. He had recently inspected the colonial department in the French exhibition. It was very pleasant to see the excellent display made by the colonies in Paris; but nothing could be more deplorable than to find the great colony of Victoria making dear and bad tweeds to compete with Hawick and Yorkshire, and manufacturing dear and bad gingham, to compete with England. It was a matter of regret that that colony, which had such immense resources, almost entirely undeveloped, and which required its capital and labour to be applied to their development, should be sending that capital and labour into wrong channels. He thought no better service could be done to the colonies than to point out those errors, and to show them what mischief they were doing to themselves. The fact was that New South Wales and South Australia, would shake hands behind Victoria, which would

be left out in the cold, and prove to be a miserable failure of a colony merely through the bad management of her trade.

Mr. R. H. PATTERSON thought that it was not healthy for the Society that any theory or doctrine should be held up as unimpeachable, and that any one who ventured to assail it should beforehand be considered a fool. For his own part, he did not question that free trade was the best for this country. We were a nation of consumers, and free trade is pre-eminently suitable for such a country; but he certainly did not see any proof that all the rest of the world was wrong, not merely a few individuals in the Society, in thinking that economic laws ought to be influenced more or less by the circumstances of each country. He also ventured to doubt whether a country in which the great power was that of consumption, was necessarily in a more enduring condition of prosperity than one in which, like France and the United States, the great growth is in production. If the increase of commerce in France, the United States, and England were contrasted, it would be found that the great increase of the commerce of the United States and of France was in exports, the productions of the country. The great increase of trade in England was in the imports, articles of consumption; and these did not appear to be transmuted into an equal increase in the articles manufactured from that consumption. They were not represented to an equal extent in the exports. He did not think that the figures presented by the author were so very flattering. Unquestionably they showed a downward course for the last four years. Moreover all the figures in Table VIII are against us; and even in the imports, the materials of textile manufacture have declined, and the chief increase has been simply in provisions, food for our people. In regard to France, a protectionist country, bear in mind that the system of free trade in this country was fully established in 1851, and then, taking fifteen years after 1851 of the trade of this country and the trade of France, what did they find? That the foreign trade of France was trebled in those fifteen years, and the trade of this country was not doubled. As to the accumulation of wealth of this country in recent years being a proof of the super-excellence of free trade, looking at the figures absolutely they no doubt seemed astounding; but if they were regarded relatively, and as a percentage upon the amount of pre-existing capital, it would be found that there was nothing very remarkable about them. He had taken the figures given in Mr. Giffen's able paper, and he found, beginning with the present century, that the annual increase of capital reckoned as a percentage upon the pre-existing capital from 1800 to 1815 was $1\frac{1}{3}$ per cent.; during the next period, from 1815 to 1843, the annual average increment given as a percentage on the pre-existing capital was $2\frac{1}{3}$ per cent. Then came the period of free trade. From 1843 to 1853 the percentage of increment on capital was less than a half per cent., being only .43. From 1855 to 1865 it would be found that this increase of capital reckoned in the same way was 2.1 per cent.; and from 1865 down to 1875, it was 2.6, or exactly the same as it was in the period between Waterloo and the beginning of free trade. He confessed there were

some extraordinary appearances in those percentages, relating to the estimates of the accumulated capital of the country, and which he did not profess to explain. At all events they were suggestive of consideration.

Mr. CRICKMAY made a few remarks adversely criticising several of the points contained in the paper.

Mr. STEPHEN BOURNE said that having concluded the importance of the subject would secure an adjournment, he had not prepared himself to speak on the subject at hand. It seemed to be assumed by Mr. Newmarch and Mr. Mundella that there could be no causes in existence tending to a lack of prosperity or a prospect of decay in this country, excepting those which were attributed to free trade, or otherwise to protection. He had on former occasions given figures to prove that there would be a great and growing evil, pregnant with the most disastrous consequences to the country if persisted in, and it had been assumed that therefore he was opposed to free trade. Perhaps he was the greatest free trader in the room; but he maintained that there were causes in the country entirely and totally different from and independent of free trade, which were worthy of the deepest consideration as to whither they were tending. There was no use speaking of the large amount of imports as a source of prosperity upon the assumption which seemed to pervade Mr. Newmarch's paper, that in any given year or series of years, it necessarily followed that the goods received from abroad were absolutely paid for either by the goods exported or by the income accruing to this country from other sources. He took exception altogether to that line of argument. In one passage Mr. Newmarch spoke with exultation of forcing the foreigner to give a larger proportion of goods than he did before. If it could be proved that these were paid for by the exports of the year or the earnings of the year elsewhere, then, he held, that the very extent of the excess of the imports would be the gauge of the extent of our prosperity; but the argument he held was that we were not paying at this moment for the imports received either by the goods or manufactures given in exchange, or by the income which accrued to us from abroad; and he thought this was distinctly proved by the fact that the rapid increase of our imports over our exports had been concurrent with an acknowledged diminution of the profits from trade abroad, and the income received from them, combined with a clear diminution of the amount of goods sent out of the country. If, at the present time, when we were importing so largely above our exports we were in a state of unexampled prosperity, we must have been in a state of far greater prosperity when we had no occasion to pay for so much. It seemed to him to be essential that Mr. Newmarch should prove that each year since 1872 (when the decline first took place), during which the excess of imports had been larger than it was before, that from some source or another the means to pay for this had increased, either that our goods sent abroad, valued here at a nominal price, had sold at an extravagant price abroad, or that from our foreign investments we had derived greater incomes, and that

the earnings of the civil and other services abroad had increased. So far from there being any increase from any one of these sources during the last seven years, there had been a decrease. Another argument had been used which was, that in the years which had been apparently those of prosperity, we were lending money largely to foreign countries at a disadvantage. There was no doubt this was the case, and that a large amount of the exports from the year 1868 to 1872, must be attributed to that cause. But on the other hand, Mr. Mundella, the other night, had said that we were now increasing very largely our investments in the colonies. If this was the case he was very glad to hear it; but it must be borne in mind that the only mode of investing money in the colonies was by exports, or by the retention of the money abroad which must otherwise come to this country. Unless it were proved that there was now more money to be invested in the colonies than before, or unless it could be proved that we were exporting more goods, it was quite clear that our investments there could not be sufficiently profitable. The imports which we received from abroad were paid for first by our exports and then by our earnings. We were receiving an immense quantity of goods from the United States, and we had been paying for them by returning their bonds. This was the money that we had lent to America in former times; we had taken their bonds and they were now paying us off with the wheat they were sending to us—in fact we were parting with the securities we held upon their property. If this was not living upon capital he did not know what was. It stood to reason that if there was so little going out of the country in the shape of goods, we must be paying for the excess of imports in some way or another, and if not in income, it must be by the withdrawing of capital from abroad. Our mercantile operations were in many places being contracted, and the obligations of foreign countries to us were being worked off to a very considerable extent, and therefore our income from these sources must be decreasing. Mr. Newmarch had assumed throughout a position which was quite untenable, namely, that in each year or series of years we had paid for what we had got by what we sent away, or by what was accruing to us from abroad. This, he thought, Mr. Newmarch had failed to prove; and if so, we could not congratulate ourselves in getting from abroad a large amount over what we were sending.

The Rev. Mr. DOXEY said he was a free trader, and agreed in the main with Mr. Newmarch; but he thought that at this juncture of the affairs of this country it was of the last importance that the paper should receive the most thorough and searching criticism which the acutest men on the other side of the question could bring to bear upon it. In regard to the *percentage* tables he asked Mr. Newmarch how it was that the percentages when added together did not number 100. He supposed that some minor errors had crept into the tables, some made 97, 98, and 99, and some over 100. [It was explained that this was on account of the fractions.] He presumed it would be so; but it would make to some extent a difference in the calculations if this were rectified.

Mr. WALFORD moved the adjournment of the debate to the next meeting.

This was agreed to.

The PRESIDENT said there was one table in Mr. Newmarch's valuable paper which he wished to call attention to. Mr. Newmarch, in giving a list of the countries who had tariffs hostile to this country, had, he thought, rather unfairly included Sweden, Norway, Denmark, Holland, and Belgium. Some time ago he had to consider that special point; and he thought the tariffs of those five countries were much more favourable than those of other European countries, and he thought they were worthy of a different heading. Comparing the trade of those five countries with France, Germany, Austria, and Italy, he had found that since 1859 our import and export trade with those five countries had increased 300 per cent., while with the four non-protectionist countries it was only 100 per cent. The exports and imports of those countries increased in the same proportion, whereas the imports with the four countries increased 150 per cent., and the exports of this country only increased 75 per cent. He only mentioned this to show that it might be well to analyse our returns more completely with those of other countries, and the more they were analysed the more apparent would the advantages of free trade become. The tariff of Belgium was not a hostile one at all; it was generally a free trade tariff in respect of the trade of this country; and he found that the total trade between this country and Belgium amounted to 6*l.* per head of the population of this country, whereas our trade with France amounted to 2*l.* per head. He believed the more the trade of this country with the other countries of Europe was analysed, and the more completely those countries which had a hostile tariff towards this country and those which had a comparatively free trade tariff were separated, the more apparent would be the arguments in favour of free trade to those countries who were favourable to it. If one looked at the paper from the point of view of foreign protectionists, he was not quite so sure that it would be so conclusive to their minds as it was to our own. Taking, for instance, France, Austria, and Russia, he would apply to them the same principle which Mr. Newmarch had applied to this country, namely, compare their export and import trade for the last fifteen years. The import and export trade of those countries had increased from 326,000,000*l.* to 612,000,000*l.*, which was nearly 100 per cent. This was a very great increase, and was also in fact proportionately somewhat greater than the increase of trade of our own country, and would present itself to those who had antagonistic views, that that was extremely satisfactory. He did not for a moment say that that was an argument to be brought against free trade. He thought, however, that it was not fair to ascribe the whole of the enormous increase of trade in this country to free trade, because other causes had been at work in other countries, and the increase in those countries had been very great indeed. No doubt it would have been infinitely greater if there had been free trade; but it was very great in itself.

ADJOURNED DISCUSSION on MR. NEWMARCH'S PAPER.

(Tuesday, 18th June, 1878.)

Mr. WALFORD who, at the last meeting moved the adjournment of the debate, gave his reasons for doing so, the principal of which were that on papers of much interest and importance, there was too little time for discussion on the same evening after the paper had been read; that he wished to draw the attention of the members to this fact in view of seeing how far, and by what means it might be remedied; and finally he desired to give Mr. Bourne an opportunity of adducing facts which would tend to point out what he ventured to think were some inaccuracies in the paper.

Mr. BOURNE, without wishing to detract from the singularity of the paper that had been read, called attention to what he considered a great many errors in it. It was quite evident that a paper such as Mr. Newmarch had read could not be altogether compiled by himself, occupied as he was in his ordinary business; and his (Mr. Newmarch's) work must have been deputed to someone who had done it imperfectly and inefficiently. The first point to which he would call attention was on p. 201, Table IV. In detailing the imports per head as compared with the exports, Mr. Newmarch stated that in 1877-75 we had imported 380 millions, which was equal to 11*l.* 10*s.* per head. Mr. Newmarch had entirely lost sight of the fact, which was shown in the eighth column, that of that 380 millions we exported 57 millions; and he (Mr. Bourne) submitted that it was quite incorrect to divide the whole of the imports, whether they remained in the country or not, among the population of the country. As a fact, five-sixths of the coffee brought into this country was taken away again, and the value of that was included in this 11*l.* 10*s.* This he would correct to 9*l.* 15*s.* in the first line and to 5*l.* 7*s.* in the last. With all submission, although it did not much affect Mr. Newmarch's argument, which was based upon the relative proportion of the two figures, he would suggest that the table required correction in that respect. Then in Table IX, p. 211, which treated of the "Progress of Supplemental Imports and Exports," he was at a loss for some time to know whence Mr. Newmarch derived his figures. For 1870 the remainder of enumerated imports was put at 17 millions and of unenumerated at 64 millions. When he (Mr. Bourne) referred to the official tables he found that the figure 17 should be 40, and that 64 should be 24, making a total of 64 instead of 81. He mentioned this matter because it was of importance that they, as a Society, should notice the reason why the error had arisen. In the *Statistical Journal* the tables were compiled on the system introduced at the time when Mr. Newmarch was editor. Until 1871 the official returns did not give any statement of the value of unenumerated articles, but only of those that were enumerated. In 1871 they commenced to give the value of the unenumerated as well as the enume-

rated, and the editor of the *Statistical Journal* had previously calculated the unenumerated as 25 per cent. on the enumerated. On looking to the table on p. 262, it would be found that in each one of these years the unenumerated imports were one-fourth of the enumerated. This was a very fair estimate for a temporary purpose; but he submitted that a total like that was utterly unworthy of being embodied in the permanent statistics of the trade of the country. To show how far a statement like this was from being correct, he would call attention to the fact that in the same table the total imports in 1860 were stated to be 181 mlns., whereas they actually turned out to be 210 mlns.; for 1859, 153 mlns. should stand at 179 mlns., and for 1858, 144 mlns. should be 165 mlns.; so that there had been an error running throughout. Those totals, he fancied, were embodied in Tables B, C, &c., in the Appendix, and hence very great error had arisen. Turning to p. 248, Table B, the total imports in 1870 were stated at 320 millions where they only actually amounted to 303 millions. Those for 1869 were stated to be 313 millions, whereas they were only 295 millions. This altered the percentage; and on reference to Table C, p. 252, it would be found that some of those figures were given as he had read them. None of the tables agreed with each other; the total of imports in the three different places being different. In Table A, p. 243, for 1870 the imports were stated at 303 millions, which was the right quantity; but in p. 252 they were stated at 320 millions. There were various errors of that kind which affected the percentages as they were worked out, and which, therefore, in a greater or less degree would affect the conclusions at which Mr. Newmarch had arrived. With regard to the argument raised by the supplemental imports, he did not say that Mr. Newmarch's theory was altogether upset, but he thought this was a case in which, by intuition, Mr. Newmarch had arrived at a conclusion. There was a constant invention of British manufactures exceeding that of foreigners; but Mr. Newmarch's argument had been supported by figures certainly not derived from the strict official tables. Turning again to Table B, he found the same error was there committed of comparing the total imports of the country with the exports of British produce alone; but he would point out that in questions affecting the balance of trade it was utterly erroneous to include that which was sent away again. Passing on to Table XIV, p. 218, which introduced the question in which he was most interested, namely, the balance of trade or the excess of imports or otherwise, Mr. Newmarch quoted from the *Economist* newspaper statements prepared by Mr. McKay, of Liverpool, which he endorsed as being in the main correct, although in many particulars he differed from them. On p. 219, in the first section ("freights"), Mr. McKay laid down the principle that in estimating the real value of the imports, there should be deducted from them the whole freight which was paid, and also the whole amount paid for insurance. Now, it should be understood that the values of the imports, although the details sometimes fluctuated in accuracy, were in the main correct. In principle, they should be valued at the wholesale market price on board the ship in which

they arrived. The instructions he was in the habit of giving officially to importers were, that supposing a bill of lading for a certain cargo on board a ship in the harbour should be exchanged for a cheque representing its actual value, that would be the amount required to be given as the official value. In the same way exports also should be valued. The value to be given should be the amount of a cheque which might be paid for the bill of lading at the time the ship departed. Now the freight paid in England was rightly deducted from the value of the imports; because of its amount not being paid to the foreigner, and therefore it did not go out of the country. With regard to marine insurance, he thought the whole amount ought not to be included in estimating the balance of trade, but only the profits of the transaction, for if the whole amount paid in premiums were taken, the money which went out of the country to pay for losses must also be taken on the other side. The insurance on goods lost in transit were perhaps paid for here; but the goods themselves were not brought to the country, and were not included in the valuation. This was a deduction which would amount to something in the total. He (Mr. Bourne) had attempted to strike a balance in our own country; and the principle he went on in the paper he lately read before the Society was that an exchange taking place, some point must be fixed at which it really did take place. He fixed that point at where the goods arrived, and where they went out, and by getting the value of the imports on arrival, and the value of the exports at departure, the balance was what had to be provided for to pay the foreigner. Mr. Newmarch's principle was to trace the goods back to the point from whence they came, and to trace them forward to the point to which they went, and thus to strike a balance. This was a question of degree only, because on his (Mr. Bourne's) principle, there should be a set off against the total values he arrived at in the amount of profit on the transaction, and the amount of money earned abroad, which, instead of coming to this country, was devoted to the payment for the goods imported. He mentioned this to account for the difference of results at which Mr. Newmarch and himself had arrived on this matter. Mr. Newmarch went on to say in p. 220, that he agreed generally with Mr. McKay's deductions. The sum total of Mr. McKay's estimate was that $8\frac{1}{2}$ per cent. should be deducted from the imports, and $13\frac{1}{2}$ per cent. added to the exports, in order to balance the one against the other. Upon that principle he showed in the nineteen years an apparent balance against the United Kingdom of only 23 million pounds; Mr. Newmarch's opinion of this was that the balance was so small that it could not possibly be correct. Without at all entering into the reasons, he altered the $8\frac{1}{2}$ per cent. of Imports to 5, and the $13\frac{1}{2}$ per cent. of Exports he reduced to 10; and on this basis Mr. Newmarch struck the balance. He (Mr. Bourne) had taken the trouble to calculate the figures Mr. McKay had given for nineteen years on the same principle as Mr. Newmarch had done for twenty-two years. Calculating the alteration on Mr. McKay's method, there would be on the sum total a difference of 1,054, and on Mr. Newmarch's principle the difference would only be 354, yet

on turning to the two tables it would be seen that Mr. Newmarch gave the apparent balance against England at 1,610 instead of 354, being an increase of about 1,300. The reason was this—that Mr. McKay had included—and rightly so—in his computation the amount of foreign exports which were sent away. Mr. Newmarch seemed to have utterly ignored, or forgotten, or put out of sight, the fact that the 1,600 million pounds of total imports for twenty-two years must be reduced by the 1,000 millions again exported. Again, he had divided by 19 instead of 22, which gave 85 millions as the average, whereas it should have been only 69 millions, agreeing with the 70 millions which Mr. Newmarch had used further on. The main point was this, that Mr. Newmarch said the corrected excess of imports was 1,610 millions, and from this total in the paragraph in p. 222, 100 millions was deducted for excess on Imports of Bullion. Now the bullion was not in fact included in it. In twenty-two years there had been a total excess of 1,610 millions, or 70 millions per annum, and the result of Mr. Newmarch's calculations was, that if a balance of trade was struck in this country for twenty-two years, there would be an average of 70 millions excess of imports during the whole of that period. Of course he (Mr. Bourne) was startled with that, because, on referring to his own calculation he found he had only given 25 millions as an average; and the explanation was just this; that in the 1,610 millions, about 1,000 millions of the imports again sent away from the country were included. Making Mr. Newmarch's correction of 5 per cent. deduction from imports, and 10 per cent. addition to exports, the total came to be 24 millions as an average instead of 70 millions. Credit could not be claimed for having retained in the country an excess of imports if the goods had been again sent away. His (Mr. Bourne's) table brought it to 30 millions including five millions of bullion, so that his estimate of the excess, arrived at by a different process of reasoning, came to 25 millions per annum; while Mr. Newmarch's came to 24 millions, which, seeing that they were on a totally different method, was a singular confirmation of both calculations. Throughout the whole of Mr. Newmarch's further arguments, he treated the balance as one of 70 millions and not of 24 millions, whereas this 70 millions could not be deemed an excess of imports which we had retained and therefore adduced in proof of our prosperity. In p. 223 Mr. Newmarch spoke of Mr. Giffen's paper, and laid it down that Mr. Giffen's calculations of the accumulation of capital required to be corroborated by the excess of imports. That was one portion of the tables which might be thought to harmonise; but what would become of that harmony when the 70 millions were reduced to 24? He could very easily suggest a mode of restoring the harmony, because if Mr. Giffen next year were to calculate the accumulation of capital in the kingdom in the light of more recent income tax returns, and diminished value of mines, &c., he would probably be able to throw off the odd 40 millions, and perhaps 40 millions more; but for the present he thought it quite destroyed the argument as to the excessive prosperity of the country derived from the ability to consume an excess of 70 millions per annum. If, with these figures before him, Mr. Newmarch

came to the conclusion that for twenty-two years past we had been paying for a surplus of 70 millions of imports, he was not at all surprised at his treating with very little consideration the 100 millions we have had to pay last year. The distress in the trade of the country and a variety of causes would allow of the supposition that a difference not greater than that between 70 and 100 millions would be recovered in the course of trade; but when the average of 23, 24, or 25 millions came to be compared with 100 millions, the circumstances of the case were very different. It was a startling fact, that for the last twenty-two years we had only 24 millions for surplus of imports, and now we had a surplus of 100 millions to provide for. He thought this warranted inquiry into the cause of this state of things, which did not manifest the amount of prosperity Mr Newmarch would deduce from it. Mr. Newmarch, in the table on p. 221, divided the period into eight and fourteen years. That was an arbitrary division, into as near as might be the even five years, and he took exception altogether to stating the case upon the average of twenty-two years. He would propose to divide these twenty-two years into two periods of seventeen years, from 1856 to 1872, and of the five years which had succeeded. He did not fix upon 1872 as an arbitrary period, but he took it as the year in which the exports began to decline, while the imports went on considerably increasing, and he wished to compare the seventeen years which preceded the time when the balance against us was the least with the five years when it had been gradually increasing. Taking the total imports, and deducting from them the 5 per cent. which Mr. Newmarch laid down, and adding the 10 per cent. to the exports, the result was that the average for the seventeen years was an excess of imports of 16 millions only; while for the five years since it had been 51 millions. He thought that that betokened a very considerable change in the trading relations of our country, and it was one which ought to excite very close inquiry. It was very easy to speak of an average of 24 millions for a long period of years; but when the 16 millions was compared with the 51 millions, he thought the difference was very startling, and it became more so when the individual years comprised in those five were compared with each other. In 1873 the excess was 10 millions; next year, 24; the next, 46; the next, 74; and the next, 99; therefore, since 1872 (basing the calculations upon Mr. Newmarch's own method), there had been up to the present time a progressive and alarming increase in the value of the imports. This, on the theory which Mr. Newmarch laid down, was a proof of their extraordinary prosperity. He (Mr. Bourne) had puzzled his brain over and over again to see how it was possible it should be so. If it were the fact that we got the whole of these imports in exchange for our exports, then it would be a proof of great prosperity. Supposing we were trading with a savage nation for a pound of beads, we would perhaps get a tusk of ivory, and the value between the two, constituted a very handsome recompense for the labour bestowed: the country was the gainer by the difference between the two: but when they came to trade in a more civilised form, they found that the amount of exports and imports

were really book entries. Nobody could believe that the imports to this country absolutely balanced the exports sent out. There were also other considerations to be taken into account. We were constantly advancing capital to the colonies and foreign countries, which could only go out in the shape of exports. This was not a gold producing country, and we could only advance money to foreign countries either by sending exports, or intercepting British earnings abroad, which would otherwise come home, or by creating debts either on one side or the other, and this was the process which, he believed, had been going on for a series of years. Before 1872, we were prosperous, exporting largely, and advancing money to foreign nations in a larger proportion than we had done since; and now we were getting back the exports of former years, that is the money we left there to fructify, in the shape of our extended imports. This he thought was a position of very great danger if continued. He knew that Mr. Newmarch would differ from him as to this matter; but he would ask, the excess of imports having grown from 10 millions in 1875, to 99 millions in 1877, how was it that the country was in such a distressed condition at the present moment! No practical man would say that it was possible in the interval between those years, for our earnings to have increased by that enormous amount; and if not, it was clear that we must be either drawing upon previous accumulations abroad or else must be creating debts which were existing against us at the present moment. The explanation was that we had large accumulations in foreign countries, and these we were now drawing upon. Mr. Seyd had computed the indebtedness of the world to us at something like 1,000,000,000*l.* to 1,200,000,000*l.*; and if so, it was very easy to reduce that by 50,000*l.*, or 60,000 a-year, without immediately feeling it; but the time would come when we should feel it, and we ought to protect ourselves against that time. But it would be said, "Why utter these words of warning when they are so adverse to our national prosperity?" The wisest physician was he who formed a correct diagnosis of disease and convinced his patient that it was of some importance. He believed that England in its trade and commerce, was positively sick, he would not say ready to die, but it would die if we were not alive to the danger, and took the necessary means to prevent it. He therefore entirely dissented from the dictum laid down by the President in his remarks on a recent occasion, "cultivate the imports, and let the exports take care of themselves." That might have been thoroughly sound policy at the time when Sir Robert Peel altered our tariff, because then we had the monopoly of coal and iron, and of the capital and skill which was necessary to work it and turn it to profit, but now the circumstances were entirely altered. We must now seek for means to get our exports bought by foreign countries in order that we might have the means of paying them for the imports we received. The present high expenditure of all classes ought to be reduced and more economy exercised, and the amount of the exports increased. Above all we should adopt the great remedy of cultivating new markets abroad. It was noticeable, that while foreign nations were diminishing in the consumption of our goods, our

own colonies were increasing. If we believed with Mr. Mundella, that our manufacturing supremacy was exposed to no danger from foreign competition, we might go on sinking pits, to keep company with those which were being flooded out in Staffordshire, erecting furnaces to be blown out like those in the Cleveland district, and mills to lie idle as those were doing in Lancashire. If with Mr. Giffen we trusted to an accumulation of capital at home, we might go on building palaces like that at Kensington, which was too big to find a tenant, and could not under any circumstances be converted into payment for the food we consumed. But if we gave good heed to the teaching of the figures produced, we might guard against the evils he had pointed out, as likely to arise in the future, and in so doing find the elements of the regeneration of our land.

Mr. COHEN said he could not follow Mr. Bourne in his criticisms on the statistics of the paper; but every one must agree with the general spirit of the argument which Mr. Newmarch had propounded, namely, that free trade was expanding to an enormous extent the transactions of the different countries of the world, and had enabled each country to increase its imports and exports. He put it to the meeting, however, whether a great part of the results which flowed from free trade were not equally quoted in countries adhering strictly to the protectionist system, as being the natural result of the increased facility of communication. He had travelled abroad and was astonished to find how the ablest men in Europe looked at things with opposite glasses, and were as much wedded to protection as we were to free trade. It was necessary that we should not ignore the collateral causes which helped to swell the increase in our imports. At the present time a transaction could be liquidated between the different countries of Europe in twenty-four or forty-eight hours, whereas formerly it took fourteen days to do it; the power of exchange was therefore increased by so much. He was a thorough freetrader himself, but he did not think that the case of free trade should be overlaid. The next point, and one which came more immediately under his own observation, was that in an indirect way we had been diminishing, especially during the last four years, our holdings of foreign securities to an enormous extent, and by so much increased our power of paying for imports, but, of course, at the expense of our capital. Until the year 1872, running on to the middle of 1873, this country had an enormous power of suction for foreign securities from all parts of the world. There was no country to which we did not lend our capital, or whence we did not import securities which had not been pre-existent here; and while the imports had been 16 millions in excess of the exports of that year, the unknown factor of the foreign securities imported had to be added to the then amount of imports. For the last four years, and especially for the last two years, the reverse had been the case. He had been at some pains to ascertain how much foreign securities we had parted with, but there were no accurate or trustworthy data to go upon, and although he could not say his information was

altogether reliable, it might interest the meeting to know that it had been estimated that 22 millions of Russian securities had been parted with since the outbreak of mistrust between the one country and the other. This was an enormous factor when the question of imports and exports was considered. There had been also another very great scare in this country in reference to the securities of the United States. He had no means of arriving at the amount of the United States' Debt that had been exported to America in the beginning of the year; but the figures must be very large indeed. Further, in 1871-72, during the time of the great national loans in France, a large amount of capital went over to France. Therefore up till 1872-73 a large amount of foreign securities could have been added to the imports which had to be paid for. But the converse having now taken place, the power of importation of goods and food had been increased by the export of the unknown quantity of securities of which there was now no registry. In arriving at comparative results those important points should be borne in mind. He agreed with the conclusions Mr. Bourne had arrived at, that for the last two or three years we had been trenching upon our capital and savings for the purpose of meeting those imports. His observations on the tables did not quite bear him out to the full extent that had been stated that the increase in those imports was almost exclusively in articles of food. The bonded warehouses in the country were at present all pretty full, and therefore there was a larger portion of imports in the country at the present time than at ordinary times. If the balance of imports could not be redressed by the large export of foreign securities, there would be a serious inconvenience throughout the country at large, and commercial transactions must eventually be cramped by the loss of bullion; therefore the discussion was peculiarly valuable and apposite in point of time to all who were engaged in commerce.

Mr. HYDE CLARKE said that to some extent he followed the line which Mr. Cohen had adopted. He was struck in some measure by the remarks which the president had made on the last occasion. He said that however convincing the arguments of Mr. Newmarch were to the people of this country, a foreigner would look at the subject probably in a totally different way on the same figures. Mr. Newmarch's paper, notwithstanding the searching criticism of Mr. Bourne, was one which must be considered a most valuable contribution to the subject of which it treated. After all, however, he looked upon Mr. Newmarch's paper as he looked upon Mr. Bourne's criticisms, as an attempt to give a solution of circumstances, the whole of which at present were not known to us, and could not be fully appreciated. For instance, taking into account that portion of the subject with which Mr. Cohen had dealt, it would be felt that even when Mr. Cohen had given tolerably certain information, the whole of the facts bearing upon the question of the dealings in foreign securities had not been brought forward. He could not bring himself to believe, even with such a solution as that given by Mr. Cohen, that in the last five years we had trenched either upon that portion of the

capital or upon the foreign trading capital of 1,000 millions in Mr. Seyd's estimates to the extent of 250 millions sterling. He thought that Mr. Newmarch must be right in his conclusions, although he might be wrong in the details which Mr. Bourne had dealt with. The rule in such a case must be *solvitur ambulando*. If we had lost such amounts as had been stated, we could not have been in our present position of discomfort, but in one of positive ruin. After all, it was a question whether this country or other countries of the world were advancing in a state of progress or whether they were approaching a state of ruin. Had time permitted, he should have gone further into the subject, because he dissented from some of the ideas that had been advanced by Mr. Bourne. The question to be dealt with was, in reality, the question of the progress of the world which had taken place within the present and the previous generations. Of that progress on the whole there could be no doubt, whether it was attributable to free trade or not. He would go further than Mr. Cohen or Mr. Newmarch, in saying that the question of transport had a great deal more to do with the matter than any fiscal regulations or anything that might be understood by free trade itself. He would, therefore, remind them of the advantages that steam navigation had produced. When it was considered that not only every port in the world at this moment was united to our own ports by a weekly steamer picking up its portion of cargo step by step on the coast it traversed, and that wheat was brought from India, for instance, by railways where formerly it had to be carried by bullock waggons, under those circumstances, with such a rapid rate of progress of distribution throughout the world, the increase in trade must be attributed to this rather than to the principles of free trade itself. Perhaps the people in this country were too apt to be deceived by the term "political economy," and to imagine that it had a political significance more than foreigners were. Fortunately abroad the terms *économie* and *economistes* were more prevalent. The consequence was the foreign statesman or journalist drew the distinctions between the science of the theory of economy and the science and the practice of political administration and legislation. Thus with them economy held the relation which ethics or the science of morals does to legislation generally. They too, whilst acknowledging freedom in trade or distribution as an abstract advantage, might recognise also the legislation of commercial policy. On looking at the subject before them as a whole, he did not think they ought to push the principle of free trade beyond its true limits or those which Mr. Newmarch had assigned to it. They ought to obtain a right solution of the whole question, look to those material elements and social influences which had affected our condition of progress, and which, in their due appreciation or full definition, offer difficulties even to men of the approved abilities of Mr. Newmarch and Mr. Bourne.

MR. NEWMARCH spoke at length, in reply to the observations made in the course of the debate. His statements were in substance as follows :—As regards the alleged very considerable advance in

the foreign trade of what may be called the Protectionist countries, France, Austria, Russia, and United States (the facts for Germany not being available earlier than 1875), it must be remembered that, as shown in the paper, the new railway mileage constructed in the first three countries named and in Germany between 1860-75, was 38,000 miles, and in the United States 45,000 miles, besides tens of thousands of miles of telegraph wire; while in the United Kingdom between 1860-75 the new railway mileage (all of the third or fourth order of importance) was only 6,300 miles. Allowing for the very large absorption of foreign commodities in the construction of the 38,000 and 45,000 miles of new railways, only a very small balance remained to represent the increase of the ordinary Imports in the four or five foreign countries in question. The details are given at p. 206. The results in favour of the free trade policy of the United Kingdom are rendered all the more striking when the facts are analysed in this way. There might be errors of detail here and there in the paper, and the speaker would be glad to correct them as far as possible. Mr. Bourne's speech was clear and able, and remembering that Mr. Bourne had command, from his official position in the statistical office of the Custom House, of all the resources of that establishment, the speaker was much gratified to find that Mr. Bourne had not discovered any error which affected materially any conclusion of the paper. As regards Table XV, the speaker agreed that it would be much improved by including in it a column giving the Re-Exports of Foreign and Colonial Produce, and he would attach an Appendix to the paper showing the table in the improved form, for the suggestion of which he was obliged to Mr. Bourne. The effect of the inclusion in the exports of the foreign and colonial, as well as the British produce, would be to reduce the apparent Excess of Imports for the twenty-two years 1856-77, from 70 to between 20 and 30 millions; and in that manner remove still further the difficulty felt by many persons in admitting that the Excess of Imports was as much as say 70 millions sterling per annum. It was clear, however, that during the five years 1870-74, the Imports and Exports (including in the latter Foreign and Colonial Produce) when corrected for charges, were so far from showing an Excess of Imports, that they actually showed a small Excess of Exports. But an Excess of Exports was clearly, as regards the United Kingdom, a phenomenon wholly exceptional; and a phenomenon which suggested strongly that the figures of a widely *opposite* character arising in the three years 1875-77, were no more than a natural correction; so that if the eight years 1870-77 are taken together, the results are not widely different from the fourteen years 1856-69. In conclusion, Mr. Newmarch asked the persons who consider that we should depart from the free trade canon by seeking reciprocity with other countries, to state precisely what measures they recommend. Reciprocity means a mutual abatement of duties. The United Kingdom have no duties to abate. Are we then to reimpose duties, in order to have a basis of negotiation with foreign countries? are we to reimpose duties on raw cotton in order to

compel the United States to admit iron or woollens at reduced rates? Further, what is to be done practically to "encourage the exports," as is said? There can be no real extension of exports except by reduction in cost of production and improvements in quality and taste. But taxes on raw materials mean the very reverse of this process. In conclusion, the speaker re-affirmed that all the evidence collected in the Paper, and all the speeches delivered in the debate, only confirmed him in the conviction that for the last thirty years free trade had been one of the principal causes of the progress of this country; and that in every other country of the world, not excluding the youngest and most backward, it was the only kind of fiscal policy consistent with public welfare and contentment.

*On the DEBTS of SOVEREIGN and QUASI-SOVEREIGN STATES, OWING
by FOREIGN COUNTRIES. By HYDE CLARKE, F.S.S.*

[Read before the Statistical Society, 16th April, 1878.]

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I.

It is amidst the growth of many States, and the wonderful develop-
ment of the world, in America, on the Pacific, in Africa, and in
Australia, that a vast extension of commerce has been seen.
Among other things, large loan operations have been engaged in
with various Governments, in which all the saving classes of
England, France, Holland and Germany, have taken part. Means
have thus been found for the construction of railways and public
works, in the United States, Mexico, Cuba, Peru, Chile, the
Argentine States, Russia, Roumania, Turkey, Egypt, Java, China,
and Japan. The permanent advancement of prosperity throughout
the world has been promoted, accompanied by an enormous increase
of production, and the opening of many markets for the consumption
of manufactures.

At the early period after the formation of the European States,
loans were made to kings and princes by the Jews, on a system of
copartnership lately termed syndicate. At a later period, these
loans were made by the Lombard and Italian money-dealers, and
the descendant of a Florentine banker, Peruzzi, still claims a
principal sum, repudiated by one of the Edwards, and the compound
interest upon it.

Among other operations, the Greshams, under the title of the king's exchanger, appear to have been engaged in raising temporary loans at Antwerp, and its allied bourses. As late as 1800 United States dividends were paid at Antwerp, and there is still a small foreign bourse, but supplanted by Brussels.

The merchants of the Hanse Towns and Low Countries had already been engaged in these operations in succession to the Italians, when the independance of Holland concentrated them in that country, which likewise became a refuge for the Jews driven out of Spain.

The accession of William of Orange to the throne of England, by putting a stop to the naval rivalry, brought England again into its old and close relation with Holland, and on the establishment of the funding system here, the Hollanders took a large part in our consolidated debt, bank stock, and in India stocks.

All through the last century, Holland was the great centre for the trade in foreign loans, one means by which that country was much enriched. In 1778, Holland was reputed to hold 62,000,000*l.* in the stocks of France, England, &c., but this is doubtful. McCulloch in his "*Taxation*," p. 412, is wrong in his deductions from this as to the position of Holland, for the people of Holland continued to accumulate capital down to the French Revolution, but other countries grew more rapidly in population and production. The French Revolution, attended by wide repudiation, to a great degree destroyed this branch of accumulated capital, and the yoke of the Empire still further impoverished Holland. At the Great Peace, Holland was restored, but it was no longer in the same relative position, England in particular having largely grown.

One class of operations of which we have an account, is for the then new United States, for which Holland was for some time the money market, and where United States railway bonds are still placed in conjunction with Frankfort.

During the war the United States borrowed in Holland at 4 per cent., under the guarantee of the French court, 400,000*l.* This serves to show how moderate the rate of interest then was, and how the credit of France stood.

Besides this loan before 1790 the United States had borrowed in Holland :—

	<i>£</i>
First loan, 5 per cent.....	440,000
Second „ 4 „	200,000
Third „ 5 „	100,000
Fourth „ 4 „	100,000

It will be seen that the United States also had a good credit, and they upheld their engagements in Holland, although their

finances were much embarrassed. In 1800 the foreign debt of the United States of which the dividends were payable at Amsterdam and Antwerp, was \$10,000,000 (2,000,000*l.*)

The last United States instalment on the Dutch debt was due in 1809.

It may here be well to state that the Hollanders maintained their own integrity. While under the yoke of the French King, Louis Bonaparte, he reduced the debt of Holland to one third. On the Prince of Orange becoming king in 1814, one of the first acts was to restore the debt to its integral amount, although the Hollanders were not in a state to meet the whole interest.

Holland still took part after the peace in foreign loans, particularly under the auspices of the Hopes, and the thrift and enterprise of its men and women, have furnished large means for such investments to the present day, but it has been in subordination to England. One cause has been, that the individual loans have been beyond the compass of the market of Holland; and another, that the business of Frankfort and Hamburgh was carried on directly with London or Paris.

Paris too became a rival in this branch of enterprise to Holland. After the revolution of July, Paris became a resort for the wealthy, not only as a city of pleasure, but as a refuge from the revolutions of Europe and the Spanish-American continent. It has been at times a capital of the Spanish-American race beyond Madrid. Habits of speculation, accompanying those of work, led the French middle class to afford means for such operations, and the more so as the solid advance of France reduced the home returns on money. Thus small loans could be placed on easier terms in Paris than in London, and Paris was always available to take a portion of a large loan. Paris too became the first stage in the advance of the German-Jewish money operators, who in time competed with the old financial houses, and launched schemes of a character most disastrous to the victims. In this again they were assisted by the formation of large institutions in France, nominally for banking, but in reality engaged in gigantic speculations in association with their directors.

It may not be out of place to say some words as to the Paris market. Under the first Napoleon it supplied large funds for the Empire.

An operation recorded of that time, is that in 1811, the King of Saxony negotiated there a loan of 12,000,000 frs. (480,000*l.*) on account of the Grand Duchy of Warsaw, on the security of the salt mines of Wolisla. He appears to have placed about 280,000*l.*

On the restoration, the Paris market became quite prostrate, and could not find money for local purposes.

On the 18th February, 1817, a contract was concluded by the

French Government with the houses of Baring and Hope, for the sale of 400,000*l.* 5 per cent. rentes at the gross price of 55. On the 11th March a second agreement was made for 345,200*l.* on the same terms, and afterwards a third agreement with the two houses and with two French banks, for the sale of 360,000*l.* at 64 per cent.

The commission on these transactions was 534,200*l.* at 2½ per cent., which came chiefly to the Barings and Hopes (Bernard Cohen, "Compendium of Finance," 1822, p. 11, and Wellington's Supplementary Despatches).

On the 9th August, 1821, tenders were opened at Paris for 500,000*l.* rentes 5 per cent. The houses that tendered were

Delessert and Hobtinguer	85'55
Sartoris and Greffulhe	84'60
Rothschild and Laffitte	84'25
Ricardo and Groves	84'02½

(Bernard Cohen, "Compendium," Appendix, p. 89).

This shows well enough the nature of such operations, and what large resources they furnish for the houses engaged in them.

By 1820 Paris had so far rallied that the house of Ardoin in conjunction with Hubbard, engaged in the series of Spanish loan operations. The Paris house of the Rothschilds placed its loans almost exclusively on the Paris market.

Brussels may be regarded as a dependency on Paris and Frankfort is closely in connection with it.

Coming to England, we find that during the great war, the Stock Exchange was largely occupied with new English loans of all denominations, omnium, scrip, lottery tickets, long annuities, short annuities. One form of aiding foreign States was by loans, commonly guaranteed by England.

On the peace, some foreign loans were issued for the adjustment of obligations, but it was the establishment of South American independence which led to the formation of numerous loans. It was the influence of Mr. Canning which largely affected the country. Great hopes were raised of the results to be obtained from enterprise in the countries of gold and silver, such as arose afterwards on the opening up of California and Australia. The results, indeed, ultimately proved great and remunerative.

The loans for Mexico, Central America, Colombia, and Buenos Ayres, as well as for Greece, were at a very early period repudiated. It was very easy to call a country a republic, but it was difficult to create citizens, and none the less so to constitute statesmen and administrators. Speedily the countries were the prey of political distractions and civil war. The money subscribed by the investors

in England and Holland seldom got into the hands of the Governments. The loans were manipulated by the secondary mercantile houses contracting them, and at the most some military stores or ships reached the nominal borrowers.

The social misery produced by these defaults was great, for many families attracted by the high interest imperilled the greater part of their fortunes. Since then, although individuals have committed the same error of putting too many eggs into one basket, the main body of investors in England, Holland, and France, appear to have adopted the practice of distributing their risks.

So far as the general English public were concerned, the foreign loans of 1822-25 were a warning and a deterrent for some years, but other circumstances tended to make London a great money market. The revolutions following that of July, 1830, in France, drove many of the nobles and traders to look more to this country as a place of shelter for their wealth, nor was this effect lessened by the energy and prosperity which followed those events. The emancipation of industry attendant on the reform administration in this country gave a greater impulse to our own operations, and strengthened the general spirit of enterprise, and forgetfulness of the old repudiatory tendencies of our American correspondents, and the manifold material progress of our kinsmen, rendered it possible again to appeal for funds for various loans and undertakings.

II.

Thus for the last half-century this country has become the chief centre for foreign loans. This is not on the vulgar faith that John Bull's enormous wealth enables him to supply money to all foreigners, but because this has become the great centre for lending the money of foreigners to foreigners, as Holland formerly was.

One chief element of this condition, is the peace and the attendant political stability of England, as compared with the countries of the continent. The great material prosperity of Europe until the late crisis does not diminish this influence, but provides further funds for its maintenance. The greater a market the greater it must under the same circumstances become.

London is consequently, notwithstanding the attractions of Paris, the chief seat of the money-dealing houses, and the greater facility of the naturalisation laws, the emancipation of the Jews, the power of purchasing lands, the non-existence of a close nobility, the absence of social obstacles, all tend to encourage the residence of those, whom a disagreeable climate and the want of Parisian attractions might deter.

The reception on the continent of the pound sterling in gold as a fixed standard has very much to do with the preference of London as a seat of financial operations. The attempts to place other countries on the same footing as England by the demonetisation of silver in Germany, France, &c., have not been attended with a feeling of assurance as compared with England. There is also no fear abroad of the displacement of the pound sterling by a paper currency, which has played so disastrous a part in many countries.

While England was still regarded with respect on the continent as a power able and willing to maintain her own rights, there was always a belief that any undertaking under the English name was safe. Although this belief is diminished so far as the English Government is concerned, there is a feeling in favour of an English status for international loans on other grounds.

In Paris the Bourse is a dependency of the ministry, attended by a commissary of police, and requiring the fiat of the minister for the resolutions of its committee. Elsewhere the bourses, except at Amsterdam, cannot rely on freedom from administrative intervention. In Paris and other places the restrictions of the police on political meetings, constitute an impediment in the holding of assemblies of aggrieved bondholders, and interfere with organisation. The newspapers not being provided with shorthand writers, give no adequate report of the proceedings. In London the powerful daily papers (the "Times" not allowing political topics to prevent the discharge of such a duty), and the financial papers give more space to such proceedings than a Parisian journal does to those of its legislature.

The Stock Exchange in London, being free from administrative intervention, is able to act with effect. When in 1868 the Austrian Government made an arbitrary conversion of the two Anglo-Austrian loans of the Messrs. Rothschild, and of a Franco-Austrian loan, the Council of Foreign Bondholders was able to obtain from the Stock Exchange the removal from the official list of all Austrian securities as a penalty in 1869. The French ambassador was pretending to make the most violent representations at Vienna, and the Syndicate of the French Bourse were allowed to proceed with the case of grievance; but when they passed the like resolution as the Stock Exchange, the whole matter came to an end. The minister did not give his signature, and the resolution was abortive. It was supposed that the Emperor Napoleon had used this affair as a part of his system of concessions to the court of Austria to engage them in the French alliance, and the interests of holders of French bonds were consequently abandoned.

England having taken the chief hand in ocean steam navigation,

it became the main seat of the gold and silver market, and the extended use of gold has favoured this tendency, notwithstanding that French subsidised steamers now compete with ours in the East and the West. The bullion is, however, largely imported on foreign account, and passes of course to the continent, which gives rise to ill-founded comments and statistics as to gold leaving us or being taken for the continent. The small French, Genoese, and Catalan shopkeepers of South America, as they cannot ship produce, practically ship bullion, which in the end has other destinations than London. The operations of London as a bullion market, have a further tendency to give it supremacy as a money market. This is also favoured by exchange on London being preferred by bill purchasers abroad to exchange on Amsterdam, Hamburg, or even on Paris.

London has, in fact, such advantages as a market, that in cases where the loan is really a foreign one, and taken up on foreign account, it has been found worth while to pay an English house a very large commission to lend its name for the issue. This was so with an Hungarian loan which had been taken by a German syndicate, and which, by being made of London issue, became worth 2 per cent. more. Other cases of this kind have occurred when an enormous price has been paid for the loan of a London name, ten times more than would have been given for an ordinary commercial transaction. In most instances, parties who have received such commission, have bitterly regretted it. One of the largest houses was offered 80,000*l.* for lending its name to a loan, which was all subscribed, and on which there could be no apparent risk.

Such practices of using names have been consequent on what is called the "syndicate" system. The name is new, but the practice has always subsisted; but, in reality it is now applied under such circumstances as to bring about some new results. The practice was in Holland, and in this country, to form combinations of houses for a loan transaction. Then each house applied to friends and customers to co-operate, dividing commissions with such subscribers. Such was the case in competitions for English loans in the beginning of this century between the Goldsmids and the Barings. The great houses continued this practice of making a list for a new loan, and giving their customers the opportunity of becoming original subscribers. The consequence was, that the Barings or Rothschilds were, by the very nature of circumstances, bound to stand by their friends and customers.

It will be seen that the old lists were formed of investors customarily associated with a firm of standing and reputation. The later syndicates consisted of capitalists and speculators all over

Europe, whose object was to pay no money, and make the largest amount of profit by every means. The chief of the operators was possibly not in a position to bring out the loan, even if the publication of his name would not have been a sufficient warning to the public to have nothing to do with it. Hence originated the practice of getting a mercantile house to issue a loan for a commission, as they would have carried on the shipment of produce, its assurance or any commercial transaction.

While the old financial firms called themselves contractors for the loan, the firms acting on commissions styled themselves agents, and scrupulously professed to be no more, and to be acting only on the account of others. The public did not know the difference, but when the early default took place, the bondholder on application was told that the house were only agents on behalf of someone in Frankfort or elsewhere, and that they had had no original connection with the loan, knew nothing of the country for which it was raised, had no influence there, and left to others to exert themselves for the fulfilment of the conditions.

Whereas formerly only a few houses of stability were engaged in loan transactions: of late, all kinds of persons have been so occupied, not to the public benefit.

A circumstance which has favoured the issue of foreign loans in London, as compared with other markets, consists in the facilities offered by the London Stock Exchange, and the lax administration of the criminal law. While the Stock Exchange has justly earned the confidence of continental investors by its severity on foreign governments guilty of breach of engagements, it has afforded facility and even countenance to the operations of adventurers. The unchecked freedom of transactions is seldom surpassed in any foreign market, but the constitution of the London Stock Exchange as a close market has enabled its committee to give currency to loan transactions supposed to have been examined and approved. The representations made to the committee as to amounts subscribed, are now known not to have been always well founded, and its machinery has consequently been applied to cover fraud.

These facts were too well known to persons on the continent, and the absence of a public prosecutor, or rather the non-execution of his functions as such by the Attorney-General and Lord Advocate, gave this country the preference for the issue of any schemes. Even in Paris, lax as was the administration of the Empire, the authors of one of the defaulting loans were placed in custody.

Unfortunately all the loans issued in London were not raised for reproductive purposes, or under honest agency. This class of business attracted the attention of a set of unscrupulous practitioners who found London and Paris convenient centres for

action, and whose proceedings in some instances were nothing but swindling. The fair conduct of those governments, which had raised loans through the great houses of the Barings and Rothschilds, or other respectable mercantile agencies, had induced many to place their money with advantage in foreign loans.

The new competitors for this business also assumed an English garb; abroad they passed as English bankers and merchants; in reckless scheming, they were abetted by unprincipled adventurers from the United States. Agents of the so-called London houses offered enormous bribes to the presidents and officials of the South American States, and to the ministers of European Powers, to grant railway contracts or to issue loans. The looseness and corruption of the imperial *régime* in France, and the indifference of the English police authorities, allowed nefarious frauds, by persons of criminal antecedents, to pass unchallenged. Thus the materials were laid for a scene of unparalleled disaster, which is most inadequately depicted in the report of the House of Commons Committee on Foreign Loans (from the investigations of which Committee several notorious cases were excluded), and which has inflicted not only pecuniary, but moral and even physical distress, on every family of Western Europe which had the industry to secure and the thrift to save.

Of the extent of this disaster no statistical estimate can be truly formed, figures may be given, but their true bearing at present we do not know.

The evidence of abuse has no necessary connection with use, nor is it in contradiction to it. The heavy losses of individuals throughout Western Europe, from investments in foreign loans, have called attention strikingly to the subject, but they are not conclusive as to the commercial relations of foreign loans. Indeed the most serious losses will be found to be consequent on fraudulent transactions; and whatever freedom may be allowed to trade in a well-ordered community, it is an agreed principle that no freedom should be allowed to fraud; which is not to be dealt with by economical principles, but is within the domain of politics, to be dealt with on other considerations.

III.

In 1871 the late R. Dudley Baxter, F.S.S., read before the Society a paper on National Debts. This contains some interesting matters on the growth of the debts of several States.

With regard to the amount invested in foreign loans, Mr. Giffen has attempted to ascertain this in his paper on recent accumulation of capital in the United Kingdom, read before the Statistical Society, 15th January, 1878.

This he has not succeeded in to his own satisfaction, and if the subject has baffled one so well able to deal with it, it may be conceived there are difficulties.

In his Table V, he makes the total amount of interest in 1878 in foreign funds, to be 40,250,000*l.*; it appears he takes the value at about 400,000,000*l.* This to my mind does not appear to be any exaggeration for any practical purpose of general comparison. It is most likely 500,000,000*l.* or 600,000,000*l.* nominal.

Mr. Ernest Seyd (paper on "Our Wealth, in Relation to Imports and Exports, and Causes of the Decline in the Latter," "Society of Arts Journal," 5th April, 1878, p. 406), says of our "international" wealth in foreign State stocks and colonial stocks, that in 1872 we held an amount which may be stated at 650 millions. In colonial, continental, American and other railway and public works, shares or debentures, the amount held by us is estimated at 210 millions.

The "Economist" (6th April, 1878, p. 396) says that it would appear from the statements published from time to time in the "Investor's Monthly Manual," that the amounts invested by the English public have not been less probably than 275 millions in the last four years. What this means does not, however, appear, for in the same time a large amount of stock has been disposed of.

Mr. Giffen, it will be seen, rates the annual income on foreign funds at 40 millions. We shall now see what the holders are represented to return to the Government.

While writing this paper a parliamentary return has appeared, being a return of the Annual Value of property assessed to income tax under Schedule C, distinguishing the amounts assessed on dividends from British, Indian, Colonial, and Foreign stocks, in the years 1876-77, in continuation of Parliamentary Paper No. 209 of session 1874.

The return has not come into my hands, but it is published in the "Economist," with the parallel returns of 1874 (6th April, p. 396). This I reproduce with several corrections of my own, which put it in a better shape, and alter the figures of increase and decrease.

Colonies and Countries.	Year ended 5th April, 1877.		Year ended 5th April, 1873.		Increase upon 1873.	Decrease upon 1873.
	Amount of Dividends and Annuities Charged to Income Tax under Schedule C.	Total.	Amount of Dividends and Annuities Charged to Income Tax under Schedule C.	Total.		
	£	£	£	£	£	£
British.....	—	20,829,281	—	21,160,480	—	331,199
Indian.....	—	7,068,327	—	7,082,247	36,080	—
Colonial, viz.—						
Canada	1,026,816		755,089		271,727	—
Gibraltar	1,104		1,320		—	216
Cape Colony	147,835		119,390		28,445	—
Natal	33,429		17,214		16,215	—
Sierra Leone	3,000		1,491		1,509	—
New South Wales	475,343		447,777		27,566	—
Queensland	280,489		186,244		94,245	—
South Australia	167,308		102,914		64,394	—
Victoria	694,239		582,247		111,992	—
Western Australia.....	70		—		70	—
Tasmania.....	45,977		48,761		—	2,784
New Zealand	752,987		436,389		316,598	—
Ceylon.....	34,728		40,959		—	6,231
Mauritius	62,374		64,818		—	2,444
Antigua.....	1,710		1,608		102	—
British Guiana	4,092		13,480		—	9,388
Dominica	300		—		300	—
Grenada	280		280		—	—
Jamaica	14,492		14,010		482	—
St. Kitts	324		432		—	108
St. Lucia.....	1,851		720		1,131	—
Trinidad	5,371		3,867		1,504	—
St. Helena	987		766		221	—
		3,755,106		2,889,776		
Foreign, viz.—						
Europe—						
Austria	644,778		115,942		528,836	—
Belgium	8,116		28		8,088	—
Denmark	8,664		16,662		—	7,998
France	60,907		259,194		—	198,287
Greece	2,000		2,130		—	130
Italy	144,965		157,271		—	12,306
Netherlands	475		1,496		—	1,021
Portugal	438,723		350,480		88,243	—
Roumania	96,784		118,972		—	22,188
Russia	2,360,872		1,825,355		535,517	—
Spain	169,505		759,066		—	589,561
Sweden	92,330		57,795		34,535	—
Turkey	386,604		1,747,657		—	1,361,053
Asia—						
China	44,698		—		44,698	—
Japan	212,833		73,440		139,393	—
Africa—						
Egypt	1,739,468		1,308,311		431,157	—
Morocco	6,992		12,093		—	5,101
Tunis	347		75		272	—

Colonies and Countries.	Year ended 5th April, 1877.		Year ended 5th April, 1878.		Increase upon 1873.	Decrease upon 1873.
	Amount of Dividends and Annuities Charged to Income Tax under Schedule C.	Total.	Amount of Dividends and Annuities Charged to Income Tax under Schedule C.	Total.		
America—	£	£	£	£	£	£
Argentine Republic..	476,923		402,190		74,733	—
Brazil	737,910		533,398		204,512	—
Chili	351,950		217,359		134,591	—
Colombia (South } America)	62,529		44,646		17,883	—
Guatemala	8,426		2,220		6,206	—
Paraguay	24		117,652		—	117,628
Peru	171		450,474		—	450,303
United States.....	256,820		209,095		47,725	—
Uruguay	1,749		161,205		—	159,456
<i>Returns given in 1874 but omitted in 1878.</i>						
Foreign—						
Bolivia.....	—		101,013		—	101,013
Costa Rica	—		107,323		—	107,323
Germany	—		10,781		—	10,781
Honduras	—		152,659		—	152,659
Liberia	—		6,687		—	6,687
St. Domingo	—		18,324		—	18,324
		8,815,563		9,840,993		
Total	—	39,968,277		40,373,496	3,268,970	3,674,180

In this case we have an exhibition of figures in great detail, but they only aggravate our difficulties. It is evident the return of United States stock cannot be correct, nor that of French; and those for the Netherlands, Belgium, Germany, and Denmark are very doubtful.

Figures possibly nearly correct are China, Japan, Morocco, Tunis, Argentine, Brazil, Chile, Columbia (less Dutch holding), and Uruguay.

As against decrease allowance must be made for sinking fund operations on Russia, China, Japan, Egypt, Morocco, Argentine, Brazil, Chile, Columbia, and purchase by the United States.

From the return it is impossible to ascertain how far railway stocks are included under Russia, Roumania, Sweden, Argentine, Brazil.

These figures, including loans in default, only account for about 200 millions capital and 11 millions of yearly dividends. According to these figures the yearly loss at present would be only about 3,000,000*l*.

Any calculation of profit or loss must be in proportion to the

relation of these foreign investments to the whole capital of the country.

The precise nature and extent of the operations carried on in the London loan market cannot be ascertained or appreciated. In the tables included in this paper, large figures are dealt with, but they afford no totals, for the real value of the figures cannot be ascertained. If for instance we know the amount of a loan issued in this market, it does not help us, as a considerable portion has always been on foreign account, for Hollanders, Spaniards, &c., and of late years for Germany. Then as an international exchangeable paper is created, this is always floating to and fro.

The mode in which money has been taken up is sometimes obscure, for it has not been always by direct subscription here. In the case of some of the American State loans, dollar bonds have been mortgaged here, and a portion sold to private holders, which have never come into the market. One highly respectable firm has during many years placed among its own connections many small American railway and town loans.

In 1837, if not before, a system was in operation in the London market which has since been carried out directly and indirectly on a large scale. Already the stability of England had drawn attention to the advantages of this market. As most of the stocks of Europe were what is called internal stocks, like consols, they were only payable in the national capitals. They were in bonds to bearer, then little used in England, as the policy of fiscal administration and of legislation favoured nominal subscriptions, or holdings in the name of the investor, only changeable by a formal transfer; whereas in France and on the continent bonds and shares to bearer were largely adopted. It is right to note that the facilities since given in this respect have produced the same result here as on the continent, in favouring investment and consequently enterprise and thrift, and also as a consequence, fraud. "Nominal" holdings, it is to be noted, can only be redeemed by purchase in the market, or by redemption of a whole loan. Thus the process of redemption is not encouraged. With bonds to bearer, besides the other two modes of redemption, redemption can take place by drawings, large or small.

It occurred to financiers here that foreign internal stocks might be made available here, and at the same time an opportunity be afforded for English operations in them. Mr. John Field, in his able edition of "*Fortune on the Funds*," for 1838, observes with regard to Dutch Five per Cents:—

"Many persons entertain an objection to any fluctuation in the amount of their dividend, and such may secure the payment of their coupons at the fixed rate of 2*l.* 1*s.* 3*d.* each, by the purchase of bonds with an English sheet attached to

them, in the following form:—1837. Dutch Five per Cent. Loan. Fl. 1,000 capital, payable half-yearly, on the 1st April and 1st October of each year. The undersigned hereby give notice that the coupons or dividend-warrants belonging to the accompanying bond, payable in Holland, commencing October 1st, 1837, and ending April 1st, 1847, will, after receipt of the interest in Holland, also be (at the option of the holder) payable at their office in London, at the fixed rate of two pounds one shilling and three pence sterling for each coupon of twenty-five guilders of the present currency of Holland.—Signed, D. & J. SALOMONS.”

“It will be observed,” says Mr. Field, “that the advantage of any alteration in the exchange above the fixed rate is hereby given to the holder of these bonds, the premium on which ranges at present from 1 to 1½ per cent.”

This process was largely adopted for the sale of what were called Russian *Métalliques*. For several years portions of successive loans to cover the deficiencies in the Russian budgets were thus made saleable in this market, exclusive of direct loans. After the Crimean war numerous loans and railway loans were issued in a direct form.

This process was adopted for an Austrian loan by Messrs. Rothschild, and is thus described in 1838 by Mr. Field, in “*Fortune on the Funds* :”—

“*Austrian Five per Cents*.—Dividends due 1st May and 1st November, payable at Vienna and at N. M. Rothschild & Son. Bonds of 1,000 florins each, or 100l. sterling, at the *fixed exchange of* fl. 10 per pound sterling.

“The dividends on this stock are payable at the Treasury, Vienna, in effective conventional florins; but the plan of a fixed dividend, payable at appointed agents, has been found so palatable to the English public, that advantage has been taken of it to circulate, from time to time, portions of the *Métalliques* by attaching to the German bonds an English sheet, containing an engagement on the part of Messrs. Rothschild to pay the dividends, when due, at the said fixed exchange of fl. 10 per pound sterling, or 2l. 10s. per coupon.”

The Italian loan of 1863, raised by the House of Rothschild, was only offered on the London market to the extent of 3,000,000l. The loan, however, was for 28,000,000l., and as the coupons were made payable in Turin, Paris, and London, at the exchange of 25·30 frs. per pound sterling, the effect is that the whole of the loan of 28,000,000l. is available for sale in this market, or the whole of a half-year's coupons of 700,000l. may become payable here. This is a very good illustration of many of the later operations, and of the consequent difficulty in dealing with the figures.

The London market has great advantages for transactions in which security and convertibility are the chief requisites. It has thus happened for a long period, and more particularly since the prevalent use of bonds to bearer, that the preference is given to paper having coupons paid in London.

In ordinary times the paper is kept at home, and the coupons sold or remitted to London. In times of political alarm the paper is deposited in London, and the coupons received there on holder's account and at his disposal.

At all times the bonds are a convenient document for remittance

from market to market, being of general acceptance, and having the London standard.

There is, however, one possible danger in times of panic here, that it may be impossible for English holders to sell in the London market, as a number of foreign sellers offering may still further depress prices and paralyse the market.

IV.

The following table shows the issues in the London market, so far as it is possible to describe them :—

[000's omitted.]

Year of Issue.	Rate of Interest.	Name of State.	Total Amount of Loan Contracted for.	Amount of Loan Issued in London.*	Price of Issue.	Agents for Issue.
	Per cent.		£	£	Per cent.	
1794	3	Germany, Empire....	4,600,	4,500,	—	Boyd, Benfield, and Co.
1797	3	Germany, Empire....	1,620,	1,620,	—	Boyd, Benfield, and Co.
1803	6	United States	—	—	—	{ London, Amsterdam, and Paris, for Louisiana
1810?	3	Portugal	895,	895,	—	{ Appears to have been made from Sinking Fund, but sold separately
1817	5	France	—	—	—	{ Sale of Rentes by Barings and Hopes
1818	5	Prussia	5,000,	—	{ 70 75	Rothschild and Sons
1822	6	Chili	1,000,	1,000,	70	Hullett Brothers and Co.
"	6	Colombia	2,000,	2,000,	84	{ Herring, Graham, and Powles
"	5	Denmark	3,000,	2,000,	77½	{ A. F. Haldemand and B. F. Goldschmidt †
"	6	Peru	1,200,	450,	88	Fry and Chapman
"	5	Russia	3,500,	3,500,	81	Rothschild and Sons
1823	5	Austria	3,300,	3,500,	82	Rothschild and Sons
"	5	Portugal	1,500,	1,500,	87	—
1824	5	Brasil.....	1,686,	1,686,	75	{ Rothschild and Sons Thomas Wilson and Co.
"	6	Buenos Ayres	1,000,	1,000,	85	Baring Brothers
"	6	Colombia	4,750,	4,750,	88½	B. A. Goldschmidt and Co.
"	5	Greece	800,	800,	59	A. Laughman and Co.
"	5	Mexico	3,200,	3,200,	58	B. A. Goldschmidt and Co.
"	5	Naples	2,500,	2,500,	91½	Rothschild and Sons
	6	Peru {	Balance 182,	750,	82	Fry and Chapman

* When the exact amount is not stated, the full amount is given as issued in London.

† Partly issued in 1845.

[000's omitted.]

Year of Issue.	Rate of Interest.	Name of State.	Total Amount of Loan Contracted for.	Amount of Loan Issued in London.	Price of Issue.	Agents for Issue.
	Per cent.		£	£	Per cent.	
1825	5	Brazil	2,000,	4,000,	85	Rothschild and Sons
"	3	Denmark	5,500,	3,500,	75	Thomas Wilson and Co.
"	5	"	1,000,	—	—	See 1822
"	5	Greece	2,000,	2,000,	56½	Ricardo and Co.
"	6	Guatemala.....	1,429, 8s.	167,	73	Barclay, Herring, and Co.
"	6	Mexico	3,200,	3,200,	89½	"
"	6	Peru	616,	616,	78	Fry and Chapman
1828	5	Spain	600,	600,	—	—
1829	5	Brazil	800,	800,	54	Thomas and William King
1831	5	Portugal.....	2,000,	2,000,	48	Ricardo and Co.
1832	5	Russia	6,000,	—	92½	Baring Brothers
"	5	Portugal	600,	600,*	48	Ricardo and Co.
1833	5	Greece	2,344,	2,344,	100	Rothschild and Sons
"	5	Portugal	2,000,	2,000,	48	Ricardo and Co.
"	5	Russia	3,000,	3,000,	—	Baring Brothers
"	6	Portugal	1,000,	1,000,	94	I. L. Goldsmid
1834	6	Spain-Cuba	450,	450,	—	Wright
"	5	Spain	4,000,	4,000,	60	Ardoin and Ricardo
1835	3	Portugal	6,000,	6,000,	70	Rothschild and Sons
1836	4	Belgium.....	1,200,	1,200,	92	—
"	5	Florida,	200,	200,	—	T. Wilson and Co.
"	6	Portugal	900,	900,	80	I. L. Goldsmid
1837	—	Portugal	1,000,	1,000,	—	I. L. Goldsmid
"	6	Spain-Cuba	113,	113,	—	—
1839	5	Brazil	313,	313,	78	Thomas and William King
1842	3	Chili	757,	757,	—	Baring Brothers
1843	5	Brazil	732,	732,	85	Sir I. L. Goldsmid
1849	5	Denmark	800,	150,	86	C. J. Hambro and Son
1850	5	Denmark	800,	800,	90	C. J. Hambro and Son
"	4½	Russia	5,500,	5,500,	93	Baring Brothers
1851	5	Sardinia	3,563,	3,563,	85	C. J. Hambro and Son
1852	5	Austria	3,500,	2,250,	90	Rothschild and Sons
"	4½	Brazil	1,041,	1,041,	95	Rothschild and Sons
"	4	Sweden	450,	450,	93	Palmer, McKillop, and Dent
1853	4½	Peru	2,600,	2,600,	85 {	C. de Murieta and Co.
"	4½	"	400,	400,	—	C. J. Hambro and Son
						J. Hegan and Co.

* Indemnity of bonds issued to meet claims.

[000's omitted.]

Year of Issue.	Rate of Interest.	Name of State.	Total Amount of Loan Contracted for.	Amount of Loan Issued in London.	Price of Issue.	Agents for Issue.
	Per cent.		£	£	Per cent.	
1854	6	Turkey	3,000,	3,000,	80	Dent, Palmer, and Co.
1855	4	Turkey	5,000,	5,000,	102½	Rothschild and Sons
"	4	Sardinia	2,000,	—	100	"
1858	4½	Brazil	1,527,	1,527,	96	Rothschild and Sons
"	4½	Chili	1,555,	1,555,	92	Baring Brothers
"	4½	Sweden	1,229,	1,229,	94½	Ricardo and Co.
"	6	Turkey	5,000,	{ 4,380, 620,	{ 85 62½	{ Dent, Palmer, and Co.
1859	3	Russia	7,000,	4,000,	66½	Thomson, Bonar, and Co.
"	5	Alabama	100,	100,	—	Reid Irving and Co.
1860	4½	Brazil	1,373,	1,373,	90	Rothschild and Sons
"	4½	Russia	8,000,	5,000,	92	Baring Brothers
1862	4	Denmark	560,	560,	91	C. J. Hambro and Son
"	7	Egypt (first issue)	2,195,	2,195,	82½	Frühling and Goschen
"	7	" (second ")	1,098,	1,098,	84½	"
"	5	Italy	1,782,	1,338,	74	C. J. Hambro and Son
"	5	Morocco	501,	501,	85	{ Robinson and Fleming P. P. Blyth
"	4½	Peru	5,500,	5,500,	93	Heywood, Kennard, and Co.
"	3	Portugal	5,000,	5,000,	44	Knowles and Foster
"	5	Russia	15,000,	15,000,	94	Rothschild and Sons
"	6	Turkey	8,000,	8,000,	68	{ Ottoman Bank C. Devaux and Co.
1863	4½	Brazil	3,820,	3,820,	88	Rothschild and Sons
"	6	Colombia	200,	200,	86	London and County Bank
"	7	Confederate States	3,000,	3,000,	90	{ Schroder and Co. Erlanger and Co.
"	5	Italy	28,000,	3,000,	71	Rothschild and Sons
"	3	Portugal	2,500,	1,250,	48	Stern Brothers
1864	7	{ Danubian Princi- palities	{ 916, 916,	{ 916, 916,	{ 86 86	{ Ottoman Bank Stern Brothers
"	5	Denmark	1,200,	1,200,	93	C. J. Hambro and Son
"	5	"	728,	728,	94½	Raphael and Son
"	7	Egypt	5,704,	5,704,	93	Frühling and Goschen
"	6	{ Mexico (Anglo- French)	{ 12,365, 8,000,	{ 8,000, 8,000,	{ 63 63	{ Int. Fin. Society Credit Mobilier Society
"	5	{ Russia (Anglo- Dutch)	{ 6,000, 6,000,	{ 6,000, 6,000,	{ 85 85	{ Baring Brothers Hope and Co.*
"	4½	Sweden	2,223,	2,223,	92½	J. H. Schröder and Co.
1865	5	Brazil	6,800,	6,800,	74	Rothschild and Sons
"	5	Italy	8,000,	8,000,	77½	{ General Credit and Fi- nance Company

* Partly issued in Amsterdam.

[000's omitted.]

Year of Issue.	Rate of Interest.	Name of State.	Total Amount of Loan Contracted for.	Amount of Loan Issued in London.	Price of Issue.	Agents for Issue.
	Per cent.		£	£	Per cent.	
1865	5	Peru	10,000,	9,000,	83½	Thomson, Bonar, and Co.*
"	6	Turkey	6,000,	6,000,	65½	Ottoman Bank
"	5	Austria	14,584,	—	66½	Agra Bank
1866	6	{ Argentine Con- federation	550,	550,	75	{ Baring Brothers Hope and Co.
"	6	Chili	450,	450,	92½	{ Thomson, Bonar, and Co.
"	7	"	1,121,	627,	92	{ Morgan and Co.
"	7	Egypt	3,387,	1,694,	90	{ Anglo-Egyptian Bank
"	7	{ Egypt (by debentures)	3,000,	3,000,	92	{ Frühling and Goschen
"	5	Russia	6,000,	6,000,	86	{ Baring Brothers Hope and Co.
1867	6	Chili	2,000,	2,000,	84	J. S. Morgan and Co.
"	8	{ Danubian Princi- palities	1,264,	1,264,	71	{ Frühling and Goschen
"	9	Egypt	2,080,	2,080,	90	{ Ottoman Bank Oppenheim and Co.
"	10	Honduras	1,000,	1,000,	80	{ Bischoffsheim and Gold- schmidt
"	4½	{ Holland (Dutch- Indian Railway)	339,	339,	89	{ Holstman and Co.
"	3	Portugal	5,500,	5,500,	38½	Stern Brothers
"	4	{ Russia (Nicolay Railway, first issue)	12,000,	12,200,	61	{ Baring Brothers Hope and Co.
"	5	Russia (railway)	1,694,	—	—	{ Baring Brothers, Continen- tal Firms†
"	5	"	4,500,	4,500,	77½	Thomson, Bonar, and Co.
"	7	Tunis	4,000,	4,000,	63	E. Erlanger and Co.‡
"	5	Massachusetts	413,	413,	77	Baring Brothers
1868	6	{ Argentine Con- federation	1,950,	1,950,	72½	{ Baring Brothers Hope and Co.§
"	7	Egypt	11,890,	11,890,	75	Ottoman Bank
"	5	Hungary	8,512,	8,513,	71½	London and County Bank
"	6	Italy	9,405,	9,405,	81½	Stern Brothers
"	5	Russia (railway)	1,920,	1,920,	78	Baring Brothers
"	5	"	4,349,	2,000,	80	Raphael and Sons
"	5	"	1,716,	1,300,	80	J. H. Schröder and Co.
"	5	Sweden	1,150,	1,150,	90	Raphael and Sons
1869	8	Alabama	1,044,	1,044,	81	J. H. Schröder and Co.||
"	6	Guatemala	500,	500,	70½	Thomson, Bonar, and Co.
"	5	Italy	5,200,	5,200,	73½	Anglo-Italian Bank
"	4½	{ Holland (Dutch- Indian Railway)	398,	398,	91½	{ Samuel Montague and Co.
"	5	{ Peru (Pisco to Yea Railway)	290,	290,	71	{ Thomson, Bonar, and Co.
"	3	Portugal	12,000,	12,000,	32½	Stern Brothers

* A conversion operation.

† Placed chiefly abroad.

‡ A conversion.

§ A conversion of 1866 loan.

|| Partially issued in America.

[000's omitted.]

Year of Issue.	Rate of Interest.	Name of State.	Total Amount of Loan Contracted for.	Amount of Loan Issued in London.	Price of Issue.	Agents for Issue.
	Per cent.		£	£	Per cent.	
1869	7	Roumania (Bucharrest to Giurgevo Railway)....	436, $\frac{1}{2}$	435, $\frac{1}{2}$	90	C. Devaux and Co.
"	7 $\frac{1}{2}$	Roumania (railway)	1,500,	1,500,	71 $\frac{1}{2}$	Anglo-Austrian Bank
"	4	Russia (Nicolay Railway, second issue)	11,110,	11,110,	63	Baring Brothers Hope and Co.
"	6	Santo Domingo.....	758,	758,	70	Lawson and Son E. Hartmon and Co.
"	6	Turkey	22,222,	22,222,	60 $\frac{1}{2}$	Comptoir d'Escompte Louis Cohen and Sons
1870	8	Alabama (gold).....	400,	400,	94 $\frac{1}{2}$	J. H. Schröder and Co.
"	6	Buenos Ayres	1,035,	1,035,	88	C. de Murrieta and Co.
"	5	Chili	1,013,	1,013,	83	J. S. Morgan and Co.
"	7	Egypt	7,142,	7,142,	78 $\frac{1}{2}$	Bischoffsheim and Goldschmidt
"	6	France	10,000,	10,000,	85	J. S. Morgan and Co.
"	10	Honduras	2,500,	2,500,	80	Bischoffsheim and Goldschmidt, Lefevre
"	9	Japan	1,000,	1,000,	98	J. H. Schröder and Co.
"	6	Peru	11,920,	11,920,	82 $\frac{1}{2}$	"
"	5	Massachusetts	620,	620,	87	Baring Brothers
"	7	Roumania (iron bridges)	434,	434,	85	C. Devaux and Co.
"	7 $\frac{1}{2}$	Roumania (railway bridges)	600,	600,	72	Anglo-Austrian Bank
"	5	Russia	12,000,	12,000,	80	Rothschild and Sons
"	5	Spain (quicksilver)	2,318,	2,318,	80	"
1871	6	Argentine Republic	6,112,	6,112,	88 $\frac{1}{2}$	C. de Murrieta and Co.
"	5	Brazil.....	3,400,	3,400,	89	Rothschild and Sons
"	6	Costa Rica (first issue)	500,	500,	72	Bischoffsheim and Goldschmidt
"	6	Costa Rica (second issue)	500,	500,	74	"
"	5	France	80,000,	—	82 $\frac{1}{2}$	Baring Brothers Rothschild and Sons
"	5	Hungary	3,000,	3,000,	81	Raphael and Sons
"	7	Liberia	100,	100,	85	Holderness, Nott, and Co.†
"	8	Louisiana (Livée)	400,	4,000,	84 $\frac{1}{2}$	Robinson and Fleming
"	5	Holland (Dutch-Indian Railway)	189,	189,	90 $\frac{1}{2}$	Samuel Montague and Co.
"	8	Paraguay	1,000,	1,000,	80	Robinson and Fleming
"	5	Russia	12,000,	12,000,	81 $\frac{1}{2}$	Rothschild and Sons
"	6	Spain (national lands)	2,623,	2,623,	80	Stern Brothers
"	6	Turkey	5,700,	5,700,	73	Dent, Palmer, and Co.
"	6	Uruguay	3,500,	3,500,	72	Thomson, Bonar, and Co.
1872	6	Bolivia	1,700,	1,700,	68	Lumb, Wanklyn, and Co.
"	7	Costa Rica.....	2,400,	1,496,	82	Knowles and Foster
"	7	Entre Rios.....	227,	227,	90	E. Erlanger and Co.† C. de Murrieta and Co.

* Withdrawn. There was no published agency house for this loan, but Messrs. Bischoffsheim and Goldschmidt were employed to take charge of the bonds. † Not wholly placed.

[000's omitted.]

Year of Issue.	Rate of Interest.	Name of State.	Total Amount of Loan Contracted for.	Amount of Loan Issued in London.	Price of Issue.	Agents for Issue.
	Per cent.		£	£	Per cent.	
1872	8	Paraguay	2,000,	562,	85	Robinson and Fleming
"	5	Peru	36,000,	15,000,	77½	{ J. H. Schröder and Co.
"	5	Russia	15,000,	15,000,	89	{ Stern Brothers
"	10	Honduras (ship loan)	15,000,	15,000,	80	{ Rothschild and Sons
"	5	Russia (railway) ...	1,760,	1,760,	87½	—*
"	9	Turkey	11,126,	11,126,	98½	C. J. Hambro and Son
1873	6	Buenos Ayres	2,041,	2,041,	98½	Raphael and Sons
"	5	Chili	2,277,	2,277,	94	{ Baring Brothers
"	7	Egypt	32,000,	—	84½	{ Oriental Banking Corporation
"	5	Hungary	5,400,	5,400,	80	{ Bischoffsheim and Goldschmidt
"	6	"	7,500,	7,500,	89	{ Raphael and Sons
"	7	Japan	2,400,	2,400,	92½	{ Rothschild and Sons
"	5	Russia	15,000,	15,000,	93	{ Oriental Banking Corporation
"	6	Turkey	27,778,	8,000,	58½	{ Rothschild and Sons
"	5	United States	—	—	102½	{ Ottoman Bank
1874	6	Argentine Republic	358,½	358,½	80	{ Baring Brothers, &c.†
"	3	Belgium	1,440,	1,440,	75½	Stern Brothers
"	6	Hungary	7,500,	7,500,	91½	Baring Brothers
"	7	Santa Fé	300,	300,	92	Rothschild and Sons
"	5	Turkey	40,000,	15,900,	43½	{ C. de Murrieta and Co.
1875	5	Brazil	5,000,	5,000,	96½	{ Ottoman Bank
"	5	Chili	1,900,	1,133,	88½	{ Rothschild and Sons
"	4½	Russia	15,000,	15,000,	92	{ Oriental Banking Corporation
"	4½	Sweden	982,	982,	98½	{ Rothschild and Sons
"	5	Massachusetts	310,	310,	98	{ E. Erlanger and Co.
1876	8	China	275,	275,	100	{ Baring Brothers
"	4½	Sweden	2,000,	1,500,	96½	{ Hong Kong and Shanghai Banking Corporation
"	4½	Norway	1,320,	13,200,	96½	{ C. J. Hambro and Sons
"	5	Portugal	306,	306,	83½	{ Société des Dépôts et Comptes Courantes
"	4½	United States	—	—	—	{ Baring, &c.‡
1877	8	China	1,604,	1,604,	98	{ Hong Kong and Shanghai Banking Corporation
"	6	Hungary	8,000,	8,000,	83½	{ Rothschild and Sons
"	3	Portugal	6,500,	6,500,	50	{ Baring Brothers
"	5	Turkey	5,000,	5,000,	52	{ Ottoman Bank §
"	4	United States	—	—	—	{ Baring, &c.||
1878	4½	Sweden	343'16	343'16	97½	Erlanger and Co.¶
"	4½	Norway	1'70C	1'700	95	C. J. Hambro and Son

* Withdrawn. There was no published agency house for this loan, but Messrs. Bischoffsheim and Goldschmidt were employed to take charge of the bonds.

† A portion of conversion in this market.

‡ Funding operations continued.

§ Supposed not to have been subscribed.

|| Funding operations continued.

¶ Chiefly abroad.

The amount of the national debts of Europe in 1788 was about 540,000,000*l.* Mr. Dudley Baxter makes those of the whole world in 1873 508,990,000*l.*, but then he has taken the debt of France at the forced reduction of 32,000,000*l.*

Mr. Ernest Seyd ("*Society of Arts Journal*," p. 406) makes the total amount 4,500 millions. Using the figures he gives, but in a different way, the holdings would be:—

	Own Debt.	Others.	Total.
	Mins.	Mins.	Mins.
England	785	650	1,500
France	750	450	1,200
Germany	165	400	550
Holland	80	50	120
Belgium	36	20	—
Austria	346	20	300

The same distinction, as Mr. Seyd makes, must be drawn between holdings of our debt or mortgages on one's own property and holdings of "international" property. Still, for certain purposes, the above figures give some relative ideas of the wealth of the monied classes. It is however most likely that France is thus placed too high, as perhaps also Germany and Holland too low. These should at all events be 500 millions and 100 millions.

V.

It has been suggested that it would be far better were the national capital employed in home works, instead of being lent to foreign countries. So far as an individual is concerned, whether he loses 1,000*l.* in a bubble company here or in a swindling foreign loan, the operation and the sequel are the same, but so far as the economical operation is concerned, home investment for public works, and the transactions of foreign loans, are under very different conditions, as I have explained in my treatise on "*The Theory of Railway Investment*," 1846. Our whole population, under the institution of the poor laws, must be fed, and in this we differ from many continental countries. Although the feeding of the population is provided for, there is no provision for the effective application of its labour. Thus there is commonly a surplus of labour beyond the labour employed in the production of food and other recognised products, and particularly during a period of famine.

Additions to the permanent capital and working plant of the country are made from this surplus labour, as the Pyramids and great undertakings of Egypt were made from the surplus labour of that country. Were there any adequate organisation in a period in

which other employments were slack, the national industry would be employed in improving the dwellings and public buildings of the people, in draining the soil, in embanking the rivers, recovering lands, promoting fisheries and mining, making harbours, and otherwise adding to the yearly production and permanent plant.

The conduct of foreign loans or of any branch of trade with our colonies or abroad, for obtaining new materials or food for the state of our produce, has no necessary connection with our home work, and could and should be carried on apart. Indeed, if there be a profit obtainable from our business in foreign loans, its abandonment would be a loss and not a benefit to our resources. At this time, and so long as we retain the position, we have an international money market, and it is desirable we should retain its advantages.

Although this paper is chiefly devoted to loans of foreign states, no such line can really be drawn. The loans of foreign cities, for instance, approximate to these in character. A larger amount of allied transactions is constituted by the issue of foreign railway shares, but to a greater extent of foreign preference shares, debentures, or obligations.

Town loans are always to a great degree locally subscribed, but Canadian, United States, and colonial town loans are likewise brought here. In such cases the dividends are rarely payable in London, so that a character naturally to be found in foreign loans is here wanting.

The continental town loans being mostly lottery loans, redeemable by prizes, are negotiated abroad, as they cannot be issued in this market, any more than the railway lottery loans.

The lottery or premium drawn by lot is a characteristic of foreign markets, it being considered that the lottery laws forbid their being advertised here.

Railway loans are of many kinds, and properly speaking, the Indian railway operations should be embraced under this title. In some cases the companies are English or quasi-English, and managed here. Others are nominally foreign companies, but in reality domiciled here, and having a foreign guarantee. All such dividends are payable in London. A large amount consists of debentures made payable in London, and issued by some house here either directly on account of a Government, or indirectly in the name of a company.

Such railway loans are in most cases, with such an exception as the Lombard, &c., to be distinguished from State loans, because railway and State loans, being limited in amount, after a time, and particularly after absorption by local holders, cannot supply stock enough to work more than one market.

Colonial and Indian loans are not to be distinguished for most

purposes from foreign State loans, but it is convenient in the present inquiry not to include them, as their features may only distract attention. They, however, present these circumstances, that they are largely connected with the employment of English iron and produce, and are partly supplied by the capital of those who have lived in the countries concerned. Some of the colonial loans are already being employed for local investments.

Of the extent of such operations, as already said, we are in no position to form any true appreciation. The first difficulty is that the nominal amounts are not of common standard. First with regard to price of issue, and this applies to State loans also, the nominal amount of the loan is higher than that subscribed by the public. Thus, instead of 100*l.*, the subscribed amount may be 90*l.*, 80*l.*, 70*l.*, 60*l.*, 50*l.*, &c.

So far as economical considerations are concerned, the materials are still less practicable, for the figures do not show us what the foreign Government or company received. In many cases it was a very small portion. In the cases of Honduras, Liberia, and St. Domingo, the foreign Government received next to nothing. It becomes a question whether these are to be regarded as foreign loans, or as loans from the public to the persons concerned in their concoction. So far as Peru is concerned, Peru has remitted the guano hypothecated to the bondholders, but it has been sold on contractors' account.

Thus although in the name of an Honduras or Liberian bond, our English subscriber may have parted with his money and lost it, and be involved in utter misery thereby, yet as another person has got possession of his money, there is no national loss, though that is no satisfaction to the victim.

The figures given in such estimates of issues include conversions of former operations, which do not constitute effective amounts of capital raised.

There is, however, always a demand for such figures, and they have been yearly supplied by a Brussels paper, the "*Moniteur des Intérêts Matériels*" (quoted in the "*Economist*" of 12th January, 1878), and these are reduced in "*Herapath's Journal*," from which they are reproduced.

Countries.	Loans of States and Towns.	Financial and Credit Companies' Issues.	Railway and Industrial Companies' Capital.	Comparative Total.
				1877.
	£	£	£	£
América (all)	140,051,350	—	850,000	140,901,350
Asia	1,604,276	—	—	1,604,276
Austro-Hungary	8,000,000	—	—	8,000,000
Belgium	175,600	—	142,106	317,706
Danubian Principalities ...	—	—	—	—
Denmark	—	—	—	—
France	6,434,488	11,304,480	57,833,926	75,072,894
Germany	6,199,700	150,000	1,982,550	8,332,250
Great Britain and colonies	7,645,100	—	4,245,550	11,890,650
Greece	400,000	—	—	400,000
Holland and colonies	833,758	55,120	1,156,374	2,045,252
Italy	3,878,869	—	185,000	4,063,869
Luxemburg, Grand Duchy	—	—	—	—
Norway and Sweden	—	—	350,000	350,000
Portugal	6,500,000	—	—	6,500,000
Russia	43,600,000	1,600,000	40,000	45,240,000
Spain	—	2,800,000	2,254,280	5,054,280
Switzerland	605,920	118,902	697,960	1,422,782
Turkey and Egypt	5,000,000	—	—	5,000,000
Totals, 1877	230,929,061	16,028,502	69,237,746	316,195,309
„ '76	117,827,091	3,322,343	24,944,280	146,093,714
Increases in 1877 ...	113,101,970	12,706,159	44,293,466	170,101,595

Unfortunately such figures do not afford totals, nor do they even admit of yearly comparison. They scarcely afford evidence of phenomena. It is the business of the statistician, not to deal with such figures, but to let them alone, except so far as it is necessary in the commencement of an investigation, to collect any materials, however imperfect, so as gradually to prepare the way for bringing together adequate data. It is, however, a serious injury to statistical studies, to manipulate such figures, and in no respect have such studies suffered so much. It is necessary to know when to exercise the discretion of letting imperfect materials alone. As it is, these Belgian materials have already supplied several leading articles, because to many persons figures are figures and facts, and when in print are invested with the highest sanctity.

Another specimen of figures difficult to deal with is given by the "Standard" (11th January, 1878).

"The Westminster Association (Limited), have issued their monthly report, relating to public securities, in which special reference is made to the position of holders of Egyptian securities. Attention is called to the fact, that of the 16,800,000*l.* of the preference stock, not less than 11,000,000*l.* is in English hands, and that out of the total of 56,700,000*l.* unified stock, 21,000,000*l.* is held here."

Issues of 1877.

Comparative Totals.					Countries.
1876.	1875.	1874.	1873.	1872.	
£	£	£	£	£	
62,650,000	8,857,303	89,684,360	190,620,640	80,988,900	America (all)
274,800	—	—	—	—	Asia
4,025,000	6,097,300	10,538,140	23,970,375	39,541,890	Austro-Hungary
969,980	1,184,683	7,939,786	14,487,056	2,166,820	Belgium
1,031,190	989,920	680,000	1,260,160	1,253,932	Danubian Principalities
88,960	—	—	—	—	Denmark
19,636,411	3,258,492	9,120,797	3,354,804	158,946,246	France
17,451,805	17,317,750	11,851,190	48,590,475	54,874,418	Germany
13,658,040	13,323,240	88,770,560	58,792,430	57,579,290	Great Britain and colonies
—	—	—	—	—	Greece
1,307,624	1,769,640	4,497,534	3,709,933	2,298,294	Holland and colonies
1,865,142	5,382,904	2,350,340	8,205,250	22,923,523	Italy
—	5,600	5,600	—	—	Luxemburg, Grand Duchy
1,320,000	990,000	2,159,000	67,500	—	Norway and Sweden
306,400	—	60,000	—	—	Portugal
16,360,000	3,684,000	10,936,855	23,790,528	81,013,680	Russia
1,676,000	1,095,240	—	460,000	10,224,000	Spain
3,472,362	3,123,748	12,611,340	3,575,922	4,211,990	Switzerland
—	1,100,000	17,418,750	55,439,780	39,419,200	Turkey and Egypt
146,093,714	68,179,820	168,624,202	436,324,853	505,442,183	Totals, 1877
—	—	—	—	—	„ 76
—	—	—	—	—	Increases in 1877

Unhappily these figures show nothing of the kind, they only show, if correct, that so much stock has been converted in London on English and on foreign account.

Thus the figures of the last conversion of Spanish external bonds, would show that not less than 45 per cent. is held in London, leaving the other half only for Spain and the whole continent, including Paris and the Spanish American colony there, and Holland. In Spain there are many holders of external bonds, but which come to London, as well as to Madrid, Paris; and throughout the continent many conventual establishments still hold Spanish stock.

Out of 12 millions of Austrian stock issued in London, at the conversion of the amount left unredeemed by the sinking fund, only about a million was converted in London.

Many of the loans have been raised at rates of interest nominally moderate, at 5 or 6 per cent., in reality 8 or 10 per cent., which is still, in many cases, lower than the local rate of the borrowing country. A further premium is in most cases given by a provision for redemption at par, the loans being issued at a lower rate.

In most cases of foreign and colonial loans, the wholesome

provision of a sinking fund has been adopted, which, unfortunately, has not been adequately applied to our home debt, nor so fully as it might to the colonial and American debts. It may be that the example of the foreign loans has not been without its influence in the new general stipulation of redemption for our municipal loans within a limited time.

Wherever—as in the case of many foreign loans—there is a risk of loss, the amortisation was a necessary condition. The result has been, as stated in this paper, that the working of the sinking fund has brought many investors safe home where there has been an ultimate default in the loan.

Somebody has stated that the issue of a loan below par, on which basis most of our own national debt was raised, and redemption at par, is nothing but a lottery, and a dangerous encouragement to gambling. In practice an investor takes a sufficient number of bonds to give him a fair chance of participating year by year in the drawing.

The redemption ought to be shortened according to the credit of the country, and thus the Morocco loan, now largely redeemed, the Japanese, and the Chinese loans have been constituted.

The redemption clause was not neglected by the manipulators of fraudulent loans, in which the highest rate of interest and the highest rate of redemption were combined.

VI.

It may be well at this point to refer to a consideration, not without interest, whether investment in foreign stocks, so far as the nation is concerned, promotes speculation or thrift.

In what relates to the Stock Exchange, foreign bonds are made, as everything else is, instruments of speculation, that is of gambling, and many persons outside are led to engage in such operations with the almost unavoidable result of their funds being ultimately absorbed in commissions and differences to the members of the Stock Exchange. Although one gambler may gain from another and casually retire, yet the general history of speculators is that of the final loss of the capital staked, because at each account twice in a month the fund, or common stock, of the gamblers must be diminished by the portion pared off by the members of the Stock Exchange and passing into its precincts. So with the individuals, fortunes of several hundred thousand pounds are recorded to have been dissipated to the last farthing.

This is a sufficient comment on the nature of these transactions, which have no warrant on the ground of mercantile or market character, and can find no excuse in abstract doctrines of political economy occasionally quoted in their defence. There can be no

doubt that great financial houses do make profits by such operations, but then these are really mercantile operations, which they have the funds to meet. In the case of the individual, he can seldom take up and hold his stock, and an operation good in its inception, cannot stand against the charges for the recurring account days.

In their first transactions, many persons are drawn into foreign loan investments by the bait of a high rate of interest, not unattended with disastrous consequences; others, however, invest on the advice of friends, and in a sober way. As, however, investors are drawn from the class of savers, saving instincts predominate in the long run, and prudential considerations restrain greed. There is, however, a disposition to encounter a possible risk with gain.

Within the limits of this paper it is impossible to discuss all the subjects connected with foreign loans. Among these subjects, one of the principal is, in fact, connected with that discussed by Mr. Robert Giffen, Mr. Stephen Bourne, Mr. Rathbone, Mr. Mundella, Mr. Ernest Seyd, and others. It is the question how far these operations affect our national condition. For the consideration of this topic materials have already been given here, but on a question of such difficulty, which has engaged my attention for years, I am obliged to give opinions as well as facts. So far as I have seen, the funds for foreign loan operations, though originally contributed from the general national savings, and still partially so, are mainly contributed from the savings made from foreign loan operations.

This appears to be the case in France, and notably in Holland. Any losses that are made fall primarily on this fund, and diminish its means for new operations, and only partially affect the general resources of the community. As a rule, however widely distributed, investors in foreign loans must be regarded as constituting a class, and although many new adventurers may be deprived of their property by others, for Honduras bonds, or suffer a diminution of interest in their Spanish dividends, on the whole, the statement here made will hold good, for the class begin by applying the whole or main portion of their early savings in investments at high rates.

A limit, however, is set up in time, as it is necessary that there shall be some safe provision for a wife and family. Thus the proportion of risky ventures is by-and-bye curtailed, and securities are carefully chosen. Two circumstances tend to govern investments. As for the sake of drawings it is customary to divide the bonds and to take ten hundreds instead of one thousand; so it becomes habitual to distribute the investments among several descriptions of loans, so as to avoid "having too many eggs in one basket," in case of those casualties which are always borne in mind.

As savings are applied to those investments, so interest received

and the bonuses on drawings are reinvested, and in very many instances the income is never spent. Where, too, persons have retired from business and are living on their savings, it has become habitual and recognised not to spend more than common interest on the foreign bonds held.

Thus, in the long run, the tendencies are decidedly those of thrift, and this is confirmed by long experience in Holland, and by what takes place in France.

One operation by which large fortunes have been made is the purchase of depreciated bonds at low prices, which are held for years until they bring double or greater return.

Mr. Giffen has, in "Stock Exchange Securities," dealt minutely with features in the late crisis, that I prefer reproducing some of his remarks in his words, to repeating the same matter in my own words. He says, in Section 2 :—

"The order of events in the crisis affords of itself a very striking confirmation of the assumption. The difficulties commenced in the countries more or less farmed by the capital of England and other old countries, whose industries are nourished by public loans from England and by the investment of private English capitalists within their territories, principally in the form of English iron and manufactures. The crisis in Austria, which was the first in the whole series, was a crisis in a country answering this description to some extent. To the United States, where the next great crash occurred, the description is still more applicable. The South American countries, whose prolonged suffering was the special feature of 1874, are almost a domain of England; and Russia, too, is largely 'developed' by English capital. Some of these countries, especially Austria and Russia, have not been exclusively dependent on English capital. They have also benefited by the accumulation of capital in Holland, Belgium, and France, which had been drawn largely to Germany before 1873, through the French indemnity, and had overflowed thence into Austria and Russia; but the indemnity payments, though they helped to precipitate and aggravate the crisis in Austria, did not alter the power of that crisis to react on England. No doubt in 1873, as already noticed, the collapse of the foreign loan financing had been foreshadowed; but the anticipatory events of that year were in themselves comparatively unimportant, so that down to 1875 what chiefly happened was a succession of monetary and commercial crises in countries dependent on England, but from which England by comparison escaped. In 1875 these crises were succeeded by a crisis in England itself of very great intensity, naturally leading to a renewal of crisis and distress elsewhere, though not of actual panic, and the whole culminating in the financial disorders of the foreign loan collapses, which will probably form in after years, the most conspicuous feature of the whole series of liquidations. There appears to have been a natural order, therefore, in the successive crises to which the countries dependent on England have been subjected, leading to a crisis in England itself, and finally to a financial as well as a commercial collapse."

There is this observation further to be made in confirmation, that when English capital is sent to a country for public works it stimulates enterprise, but on its cessation a very serious relapse takes place, just as if an artificial bounty were withdrawn. Thus a country, the permanent prosperity of which has been advanced, is subjected to the sufferings of poverty, just as Germany was after the expenditure of the bounty of the French indemnity.

The connection of loan operations with our foreign trade is sufficiently illustrated by Mr. Giffen:—

“We have next to adduce in evidence the fact of the great expansion of the business of investment in foreign countries previous to the depression. The great multiplication of foreign loans in the period is now familiar. Not to speak of Turkish and other loans, which were so largely mere borrowings to pay interest, there was a loan of 32 millions for Egypt after there had been large loans in 1868 and 1870. Chili in the same time (1867-73) borrowed 5½ millions; Peru, 24 millions; Brazil, 10 millions; Russia, 77 millions; and Hungary, 22 millions, exclusive of minor borrowings by guaranteed companies and otherwise. These were the nominal amounts of the loans, and the real money or money's worth ever transmitted to those countries in respect of them must have been much less; but, making all deductions, they indicate immense direct credit opened up in this country in favour of the States named. The minor borrowings we have referred to were equally important, if not more important, and especially in the case of the United States, the aggregate of small loans for railways and other purposes was immense. All this direct borrowing likewise implied a great investment of capital privately in foreign countries. Merchants and traders were induced to set up establishments abroad to facilitate the business which the loans brought into existence, and accommodate the wants of emigrants to the new fields of industry. The result was a luxuriant industrial growth in the new countries by means of this vast direct and indirect credit, which old countries were giving. Thus in the United States, immediately before 1873, the length of the whole railway system had been doubled in seven years; in Russia almost the entire system of 12,000 miles has been created since 1868; in Austria there had been an increase from 2,200 miles in 1865 to over 6,000 miles in 1873, and in South America, Brazil, the River Plate Republics, Chili, and Peru had all been endowed with railways in a very few years. The loans for these countries above enumerated, and especially the above loan of 24 millions for Peru, being avowedly all for railways. And never was there a more rapid development of the foreign trade of the United Kingdom. The total import and export trade, which was 500,986,000*l.* in 1867, had risen in 1873, or in six years only, to 682,292,000*l.*, or 36 per cent.; and the trade per head from 16*l.* 1*s.* 3*d.* to 21*l.* 4*s.* 9*d.*, or 32 per cent. The exports of British produce alone, to take the two extreme years, had risen from 179,678,000*l.* in 1868, to 256,257,000*l.* in 1872, or 42 per cent. in four years; the increase per head being in the same period from 5*l.* 17*s.* 4*d.* to 8*l.* 1*s.*, or 37 per cent. All this had followed a rapid rise in previous years; for the panic of 1866 was chiefly the collapse of a home company mania, and had not brought with it discredit of foreign loans, or a collapse of the business of lending to foreign countries; and in one or two trades the increase of business was even greater than the general increase. Thus the quantity of our iron and steel exports rose from 2,042,000 tons in 1868 to 3,383,000 tons in 1872, or 66 per cent. in four years; while there was simultaneously a rise of price which made the increase in values immense, not only in these but in other articles where there was no such increase of quantity. It is sometimes said that the burst of trade which culminated in 1872-73 was largely due to the extra demand for our manufactures created by the Franco-German War. This war checked manufacturing on the continent for nearly a twelvemonth, besides causing a war demand for certain of our manufactures; but the comparison we have made is of a year when the war was long over with a year quite before the war, while the most conspicuous instance of increase in our exports was in iron and steel, which was clearly in connection with increased railway construction abroad. The expansion of our foreign trade was thus manifestly in connection with the general expansion of our foreign investment business, and not the result of the accidental or temporary causes which have been assigned.”

This same subject of the effect of foreign loan investments on

the national capital was included in an article of the "*Economist*," of 22nd December, 1877 :—

"The facts which we have endeavoured to lay before our readers, show that, taking the whole bearings of the case into consideration, with an enormous apparent balance of imports over exports against us, there has existed nevertheless, on an average of years, at least a practical equilibrium. We say, at least a practical equilibrium, because it is certain that the balance of advantage from foreign trade has hitherto been generally largely in our favour. This average apparent balance against Great Britain has been maintained, comparatively speaking, on something like a level, down about to the end of 1873, or 1874. There is reason for thinking that at that date a much larger balance, apparently against the country, might have been met out of its resources, in the shape of income. Since that date, the resources of this class, the sums which other nations have had to pay to us for interest on money borrowed, must, for a time at least, have greatly increased.

"Though some of our recent investments as a nation in foreign securities turned out badly, others turned out well, and the amount of interest which we are entitled to draw, and do draw, from foreign countries, undoubtedly, notwithstanding all drawbacks, increased greatly in the last few years. But more recently still, as is well known, in consequence of events, of which there is no need to allude here, the confidence of the British investor in foreign securities has been largely shaken. It is difficult to estimate the exact amount, but we are led to the conclusion, that as our export was in the years from 1871 onwards undoubtedly largely stimulated by the amounts raised in this country as loans to foreign nations, so our import trade during the last three years may most likely have experienced a similar stimulus, through the drawing back, in some considerable degree, of the advances made at the earlier period. It is quite possible that the amount of dividends which this country is entitled to draw from other countries as interest on money lent, plus the amount of capital brought home, may have been sufficient to pay for a very large proportion of the whole, or perhaps the whole, of the increased importations of the last three years or so. The values of foreign bonds remitted within a comparatively recent period from this country to other countries, have been so very large, that they may well have been sufficient to stop the gap for the present, though a considerable loss has beyond doubt been experienced in realising many of our foreign securities."

With regard to the further deductions of the "*Economist*," they certainly require a limitation. The writer says :—

"One deduction, and that a very serious one, must be made from this. A very great loss, or what comes virtually to the same thing, a very great depreciation of property, has no question been experienced recently by many of those who, tempted by high rates of interest, have placed some of their money in securities which have either ceased to pay dividends, or have been sold during a time of great depreciation. To form an estimate of this loss is impossible, but taking into consideration the enormous amount of foreign securities held in this country, the aggregate depreciation must have assumed corresponding proportions. So far back as April, 1876,* the depreciation in three classes alone of foreign securities, Turkish, Peruvian, and Egyptian, was estimated in the '*Economist*,' as having been during the twelve months previous, no less than 90 millions, and there has been a very great drop in their value since that date. This loss was undoubtedly distributed over the holdings of a vast number of persons, and probably has affected only a portion of the income of most of them. It is impossible to say how much of it may have extended to Great Britain, but it is quite possible that the loss this country may have experienced in this manner, and in other ways, during

* See "*Economist*," of 1st April, 1876.

the last three years, may have been sufficient to consume, at least, as much as may have been saved in other ways, on an average during one year out of the three. In support of this statement, it is only needful for the reader to bear in mind how great the drop in value of investments in many industrial undertakings has recently been.

"To put it plainly, it is quite possible that the loss on foreign investments, and in other ways, during the last three years, may have amounted to fully as large a sum as the savings of a country during one year."

The writer, it is true, includes with foreign loans other losses, but from the statements already made, it is questionable whether foreign loans can in any way be regarded as having lost the savings of the country, to any effectual extent, when compared with those savings, with the income of the country, or with its capital.

In any enumeration of these, whether treated by Mr. Robert Giffen, or Mr. Ernest Seyd, the amount involved in foreign loans will be found to be very small in proportion to the total. Adopting, as Mr. Ernest Seyd does, 6,248 millions as the value of the national wealth, the loss of capital by defaults must be under 1 per cent., and the same appears from the figures of Captain Craigie (*Journal of the Statistical Society*, vol. xli, p. 35).

It is also to be observed, that the amount employed in foreign loans is to a great extent not to be regarded as a simple dead investment, but as a working or trading capital.

Mr. Giffen has also in his own way stated views the same as my own, with regard to the nature of some of the illegitimate loan operations, in his work on Stock Exchange securities:—

"The uglier features of the collapse of foreign loans also furnish evidence of the characteristic mark of the crisis with which we have been dealing. In addition to the issue of loans, which involved the investment of capital in a fixed form to an extravagant extent, so that immediate loss and ruin could not but ensue, there had taken place in a few years before 1872 frequent issues of loans for foreign countries so called, which were only disguises to plunder the public. We refer to the loans for Honduras, Paraguay, San Domingo, and Costa Rica, which were investigated by the Foreign Loans Committee, and to a numerous class of which these were perhaps the most flagrant specimens. These were simply issues by knots of speculators, usually on the plea that they were for some public work—to which a small portion of the money raised was perhaps, in fact devoted—but really with the design, as carried out by those concerned, to pay themselves large sums in commissions and otherwise, so long as the public could be got to believe in such things, by the payment of interest out of the funds they had themselves advanced. All this was very natural. The peculiarity of the time being the development of foreign countries by loans, it was only natural that the illegitimate financing of the time should also consist of so-called loans. As there had been bogus companies in the days of the company mania, so now there were bogus loans."

VII.

Of the extent of the defaults which have lately occurred it is again to be observed that totals cannot be obtained. In some cases the defaults have been temporary, and payment has been or will be resumed.

The following is a table of the loans in default:—

Loans in Default.

	Principal.	Interest.
	£	£
Bolivia.....	1,654,000	300,000
Costa Rica	3,304,000	700,000
Ecuador	1,824,000	183,000
Greece.....	2,400,000	all
Guatemala	542,200	80,000
Honduras	5,398,570	all
Liberia	100,000	28,000
Mexico	27,905,800	10,388,000
Paraguay	1,505,400	350,000
Peru	32,953,000	2,800,000
Santo Domingo	714,800	236,000
Turkey	140,000,000	22,000,000
Uruguay	3,164,800	380,000
Venezuela	6,616,800	2,817,862
Virginia and West } Virginia	5,521,000	5,521,000

An arrangement for Venezuela is in operation. The default of Virginia State is partial, but affecting more or less the various classes of bondholders, and most seriously injuring the credit of the State. West Virginia has made no settlement for her apportionment of the debts, but in both these cases something will be received. In Bolivia and Uruguay there is a prospect of composition, and so also in Ecuador. The cases of Costa Rica, Mexico, Liberia, Paraguay, and Santo Domingo are not desperate. Some composition may be expected eventually from Peru and Turkey. Guatemala is making occasional remittances.

The hopeless cases are those of Greece and Honduras, and it is useless to keep an account of unpaid coupons which will never be redeemed.

The heavy amounts of Turkish, Peruvian, and Mexican stocks are shared in by French, Dutch, and other holders, as also Ecuador and Venezuela. The English amount at stake does not exceed 60,000,000*l.*, subject to realisation. Insignificant as the amount at stake is relatively, I must say on the general question that I cannot believe it possible that we have lost 500,000,000*l.* in the last five years by the balance of trade against us, or that we are now losing 100,000,000*l.* a-year. The more the subject of the difference between exports and imports is examined, the more does it come out, after allowing for yearly variations, that there is a general trade charge of from 10 to 15 per cent. (freight, &c.), which is a constant in the operation.

VIII.

One of the practical points bearing on the consideration of foreign loans which it is here proposed to bring forward, is connected with the means of enforcement against foreign States in case of default.

The conditions of international law have always been affected by the existence to a greater or less degree of a number of sovereign and semi-sovereign States. Such we find in the earliest stage of their relations in the numerous Greek States and republics. During the middle ages the feudal States of France, and the numerous ecclesiastical and civil dependencies and free cities of the Holy Roman Empire, as well as the duchies and republics of Italy, played a like part. It was on the observation of these relations that doctrines of public law were formed, which were brought into system by the writers of the sixteenth and seventeenth century, and which in the last century were taught in the text-books of Grotius and Puffendorff. In England these relations were less studied, on account of the union of our kingdoms leading to greater internal simplicity.

The establishment of the American federation under the principle that each State was sovereign, prepared the way for a new series of historical incidents, and for the foundation of a school of international law producing English text-books, which not only influenced students of this country, but also the principles of international law throughout the world.

The French Revolution in its consequences again altered the frontiers of the European States. The small sovereignties were in every direction swept away, the Seven United Provinces of Holland disappeared, and the abolition of the Holy Roman Empire preserved only a few of the larger principalities of Germany. Thus what may be called the European school of international law had only to regard the operations of a limited number of States, and these greatly influenced by the proceedings of the Holy Alliance or of the five great powers. In Europe everything has long tended to the suppression of small sovereignties and nationalities, and to the creation of great powers, except so far as this has been interfered with by the promotion of revolution in Turkey from without.

In America, however, the wars of independence had created a number of Spanish-American republics, which under the favouring assistance of England and the United States were received as sovereign powers, without the smallest regard to their origin or constitution. A country with a population of Indian blood, of which a large portion was in a condition of serfdom, and has remained so, was, under the holy name of liberty, constituted a republic, and allowed to regard itself as on a par with the highest communities

of Europe and America. No distinction has been made between well conducted States like Chili and Columbia, and others like Venezuela or San Domingo. The inconveniences of this state of affairs were made apparent, even to the stage of ridicule, by the bloodthirsty despotisms of the Emperor Iturbide, of the Emperor Soulouque, of the President Rosas, and of the Dictator Francia. Of such examples many are still in existence, the constitutions being merely a theory, and the lives and liberties of the so-called citizens being at the mercy of a military despot.

In time, imitating the institutions of the United States, the republics, ever federating and ever dividing, adopted the principle of state sovereignty, which has been applied to Columbia or New Granada, to Venezuela, and to the Argentine Confederation, thereby introducing new sources of political weakness, of internal dissension, and of danger to the foreign capitalist, merchant, and investor.

It is to be observed that the application to every State indiscriminately of the whole of the rights conceded to the highest, rather rests on a theory of schoolmen than on the results of practice. It has been assumed that for purposes of contract, States, whether great or small, must be reciprocally equal. It is left out of consideration that there has always been a discrimination as to the basis of comity. There has always been a distinction between great States and small, and seldom has a congress been held but this distinction has been made known. The Romans constantly made a distinction as to barbarous nations. The relations between the Mussulman and the Christian States were not admitted by either to be on a footing of reciprocity. The most marked distinction, however, was in the different treatment apportioned by European powers to the Barbary States.

The principle of discrimination between State and State is therefore clearly admissible, and it must not be regarded as a matter of course that because the freedom of a State is recognised by the comity of nations, it is thereby indefeasibly endowed with all the privileges of those most highly constituted.

The variety of sovereign and semi-sovereign States is very little known even to the geographical student. Its scope is not limited by the Principality of Monaco, or the Republics of Andorra and San Marino in Europe.

Taking the States of North Africa, Egypt, Tripoli and Tunis, for certain purposes, are allowed to be sovereign, and for others are not recognised.

The States of the German Empire, although endowed with the name of sovereignty, must be regarded as having been divested of the substance.

The Confederate War has altered the real conditions of the constitution of the States of the American Union. They are denominated sovereign; they retain privileges under the American constitution; but these privileges have become anomalous, and even dangerous to American and foreign citizens.

If one of these States refuses to perform its obligations to a foreign citizen under contract, he is practically without redress. His own Government cannot help him, because it is not in direct diplomatic relations with the State, and the Federal Government will not intervene, as it alleges it cannot coerce a sovereign State. The same takes place in other federations. Before the Supreme Court of the United States the State cannot be held as a defendant, because it is as a sovereign State expressly privileged from process.

In this survey our own colonies must not be left out. Under the new system of colonial administration, all except the crown colonies, that is, all those possessing responsible government, are practically semi-sovereign. It is not difficult to foresee that in case of pecuniary liability, that there would be no more real remedy for creditors of the Dominion of Canada, of the federation of New Zealand, or of that of South Africa, than there is against Virginia and Louisiana.

In referring to the want of remedies for creditors now felt, it is, however, to be pointed out, that while some of the States of the American Union are protected by sovereignty against the jurisdiction of the Supreme Court of the United States, they allow the State to be sued before its own Supreme Court. In this way creditors of Virginia obtained redress against the legislature by the independent decision of the Supreme Court of Virginia. It is not, however, to be denied that such a recourse would be found very precarious in many States of the Union and of Spanish American republics, and that by votes of the whole constituency, including the non-tax-paying citizens and negroes, laws have been passed rendering it impossible for legislature or courts at any time to pay the just debts of creditors.

In following these pages of shifting history, it has to be pointed out that the remedy of the English citizen, so far as the protection of his own Foreign Secretary, is virtually effaced. The Foreign Office has had to contend with parliamentary agitation, tending to reduce the efficiency of its establishment, and with spasmodic restrictions by the doctrine of non-intervention and by epochs of national cowardice. Thus the Foreign Office was led to abandon its protection of our citizens to a very great degree, and at length to proclaim to every petty State that such was its avowed condition of impotence. There is consequently no such State, however contemptible, which is not aware of its prerogative of defiance, and

that it has only to regulate the exercise of it by its own judgment, being perfectly safe in violating the seals of an English consulate, and almost affecting the expression of injury, when called to account for flogging a consul.

At the same time the American Government, which was a rival patron in favouring the southern republics, has attained a sterner attitude, will allow no spoliation of American citizens, and has declared that it will not allow a State to plead inability to pay compensation by the dissipation of its revenues in the practice of civil war.

The difficulties of our Foreign Office in dealing with applications for protection have been very great. If desirous of resorting to necessary force, they have been subjected to the imputation that they would attempt to coerce a small State, while they would not dare to apply the same measures to a large one. There is no parity between a reclamation on a large power like the United States, at the highest pitch of development, having its credit at stake, and having a moral responsibility, and a reclamation on a small power like San Domingo, which is destitute of a stable government, or of the elementary constituency of a real body of citizens.

Under a partisan government, in subservience to parliament, a Foreign Secretary, if he possesses patriotism, consistency and fortitude, may well hesitate when he has to encounter such an or deal on the simplest measure of coercing a barbarous despot and usurper, entitled president of a republic, or an ignorant mob of dishonest and superstitious savages.

It is to be observed that efficient protection of the interests of European citizens would be obtained without expensive and disastrous wars, by judicious operations in the predatory States. The jealousy of the United States no longer exists against English action, and, indeed, it is by the co-operation, the good offices, or the good-will of the United States' minister, that an English citizen often obtains redress. The blockade of a port, the occupation of a custom house until the receipts provided an indemnity, or the arrest of a Government vessel, would, in many cases, put a stop to the proceedings of some of the offenders, and be an example to others. Venezuela has set this country at defiance for years, but the United States has lately obtained a settlement of a much larger claim.

The mercantile interests of this country are never in favour of war, but they feel sensibly the great disadvantages they are placed under in most parts of the world in contrast with the care shown for the mercantile protection of other countries.

With the nature and extent of these defaults it is not my intention at present to deal, my object being to call attention to some of the incidents for which remedial measures in one direction may be

applied. It must be distinctly understood that the question of the liability of sovereign and semi-sovereign States to municipal law will give very little relief to creditors under foreign loans, and that it is quite as much a matter of general commercial interest.

In the middle ages, where the germs of international law are to be traced, no idea existed of allowing a foreign State or a foreign citizen to get off scot free from obligations on any pretext. The system of reprisals was fully recognised. If the property of the debtor State could not be got at, then the property of any citizen coming within jurisdiction was impounded. The memory of reprisals is still preserved here by the name of the process of foreign attachment, under the court of the lord mayor of London.

Of late years, sovereign States have been allowed to obtain process as plaintiffs against native citizens or foreign residents in the municipal courts of England, France, Belgium, Holland, &c.

The municipal courts of England occasionally require, as in the case of other foreign litigants, that the State shall deposit or give security for a sum assigned by the court to protect the defendant citizen in the recovery of his costs.

This is a sufficient illustration of the right of the court in the exercise of its procedure, of the amenability of the foreign sovereign to it, and of the fact that he has no privilege in such respects, having once conformed to the procedure.

It is well to notice this fact, that should the sum assigned by the court for costs prove insufficient for the costs to which the defendant has been put when the judgment of the court has been given in his favour, he has no remedy against the sovereign State which has aggrieved him, not being allowed to sue.

In this way English merchants have made serious complaint of being aggrieved by the litigation of foreign sovereign States, permitted to sue in our courts.

The States cannot be sued as defendants. Against any such attempt they are allowed by the courts to plead their quality of sovereigns.

It is necessary at this point carefully to distinguish between the privileges of sovereign States, and the personal immunity of ambassadors, or of sovereigns visiting this country. This latter immunity exists on different grounds, but in England, besides its common law relations, it is complicated by the statutory prescriptions of the statute of Anne for the protection of ambassadors from process.

As matters stand, a State as a creditor can sue as plaintiff in Europe or the United States, but no citizen, being a creditor, can sue it as defendant. Where a suit has been instituted by a State cross claims in the same cause are in some courts allowed to be made matters of the litigation.

So far as appears, there is no right or privilege by the law of nations, that a sovereign can sue in a municipal court as a plaintiff. It is a matter of comity, and the important consideration is this, that it is subject to the municipal procedure of the country.

That is, if the king of Spain or the republic of Peru sues in a court in France or Belgium, it is under the same conditions of the code of procedure of the code Napoleon as any other litigant, and so in our High Court of Judicature, under its own rules of procedure.

This appears to give a starting-point for affording relief, whether here or in France, without the intervention of the legislature.

As the case now stands, the bondholder creditor may find the republic of Peru or of Costa Rica litigating in England or France against the contractor of a loan, but he cannot litigate with the republic which is his debtor on the same subject of action.

Many States maintain in this country a fiscal or financial agent, with an office, so that the State, which is truly carrying on business, and has a domicile, cannot nevertheless be served with process at such domicile and place of business.

What makes the hardship to the English creditor none the less is, that the contracts for foreign or external loans are by the general assent of States, and of foreign capitalists made, not in the foreign State or capital, but in London, in the English language, in English money, with a London agent of the State, with a London place of payment.

A distinction is drawn between an internal loan, like consols or French rentes, although it may be held by foreigners, and an external or foreign loan. In the former case a State raises money under its own municipal law, and with the full prerogative of imposing such taxes or making such reductions and modifications of the amount or currency as the exigency of the State may render necessary.

A foreign or external debt is one which is raised by a State under contract with foreign citizens, and the conditions of which, it is held, can only be modified by mutual consent. When Russia made default on the payment of the interest on her foreign debt in the years 1813-15, she nevertheless offered terms to her foreign creditors on the return of peace, and gave them paper bearing 5 per cent. interest. (Bernard Cohen, "*Compendium of Finance*," p. 257.)

Nearly every foreign or external loan is supposed to be in its essence subject to the municipal law of England.

There is nothing to prevent the English Government from intervening in claiming of the foreign debtor the fulfilment of such loan.

In practice such loans are enforced by the action of the com-

mittee of the Stock Exchange of London, or the intervention of the Council of Foreign Bondholders.

The moral action of these latter bodies would be much strengthened, if the decision of a court of municipal jurisdiction could be obtained.

To these anomalies the attention of the Council of Foreign Bondholders has long been directed, and in particular of the Right Honourable E. P. Bouverie, the chairman, who, in his address at the annual meeting of the members of the corporation in 1877, referred to the subject as being under his consideration.

If a State has no absolute right to take proceedings as a plaintiff, it is competent for the High Court of Judicature, the Supreme Court of the United States, and the courts of France, Belgium, and Holland, to require of such State, that if permitted to act as plaintiff in one action, it shall, as a condition of admission to the court, accept process likewise.

In the first instance, very few States would accept such a condition, but as such an arrangement would give an opening for the introduction of stipulations in loan and mercantile contracts before long, many States would have complied, and in the end few would be able to hold out.

With regard to the service of process, it has always been assumed that the ambassador is the person to be served with process, and as the ambassador is protected against process, effective action is impeded.

In some cases there is no ambassador or diplomatic representative. In all cases, however, there is a consul, who is the commercial representative, and in some instances there is a fiscal agent, who is the proper representative in loan transactions. Process should therefore be directed to be served on the consul or fiscal agent, at the consulate or at the fiscal agency.

In such arrangements of procedure no such stretch is made as might be imagined. The inconveniences of the existing state of affairs demand a remedy, and such is sometimes found. If a State enters into a contract here for the building of a ship, for engines, or for ordnance, it is a condition that the State shall name some mercantile house in London which shall engage to perform the obligations of the Government. Therefore States do come under such contract, and under jurisdiction in such way, and the arrangement proposed would offer further facilities to Governments in carrying out contracts and purchases.

In the course of the session of 1876, a proceeding was devised by Mr. John Morris, of Messrs. Ashurst and Morris, which points to a practical mode of dealing with one of the grievances of creditors.

It was proposed by Mr. Morris, as a means of relieving the

bondholders of the 1854 and 1871 Turkish loans, who were deprived of half of their dividends by a formality not matter of contract. As a formality of the Bank of England, when the account of the remittances of the tribute of Egypt was opened, some person was required, as it is termed, to "operate" on the account. The Turkish ambassador was named by chance, and at length refused to give this authority, so that the bondholders might receive their money. Mr. Morris therefore drew up the Bill which follows, but which was not proceeded with in Parliament.

"A Bill for facilitating the administration by the supreme court of judicature of funds and property hypothecated as security for foreign loans.

"Whereas difficulties have arisen in procuring the administration of funds and property within the jurisdiction of the supreme court of judicature in England, charged with or hypothecated by foreign sovereigns and States as security for the payment of their obligations by reason of it having been considered that no foreign sovereign or State can be served with any writ or other process, or be subjected to the jurisdiction of the said court.

"And whereas it is desirable that facilities should be given, enabling the said court to decide questions arising as to the rights of all persons having or claiming any interest in such funds and property, and to administer the same.

"May it therefore please your Majesty, that it may be enacted, and be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, by the authority of the same, as follows:—

"In any action commenced after the passing of this Act in the supreme court of judicature in England, relative to any fund or property within the jurisdiction of the court, of, or belonging to any foreign sovereign or State, or in, to or upon which any foreign sovereign or State may have or claim, or may be considered to have any interest, or right, and which has been specially hypothecated, charged or assigned, as security for any loan to, or any bonds or obligations of such foreign sovereign or State, or for the hypothecation, charging, or assignment of which for any such purpose, any agreement has been entered into by such foreign sovereign or State, either directly or through any agent, in case the foreign sovereign or State, interested or claimed, or considered to be interested in the fund or other property to which the action relates, has not been served with the writ, or having been served, does not appear, the action may proceed as if such foreign sovereign or State had appeared, and submitted to the jurisdiction of the court.

"Provided that the court or a judge may at any stage of the proceedings, and from time to time, either upon the application of the plaintiff in such action, or without such application, direct such notice of the proceedings as he may deem fit to be given to any foreign sovereign or State made a defendant therein, either through his or their representative in England or otherwise."

IX.

A matter of interest is the liability under international law of the portions of a divided State for its debt towards home and foreign creditors.

The cases have been well brought together in a letter of Mr. H. Guedalla.

"The conqueror who takes a town or province from his enemy cannot justly acquire over it any other rights than such as belonged to the sovereign against whom he took up arms." — Vattel, p. 387.

"The property belonging to the Government of the vanquished State passes

to the victorious State, which also takes the place of the former sovereign in respect of the eminent domain. In other respects, private rights are unaffected by conquest.'—WHEATON, vol. ii, p. 82.

"As to such rights (of neutrals) VATTTEL says (p. 322):—

"It is not the place where a thing is which determines the nature of that thing, but the character of the person to whom it belongs—*things belonging to neutral persons which happen to be in an enemy's country, or on board an enemy's ships*, are to be distinguished from those which belong to the enemy.'

"Again, the money lent was a deposit confided to the public faith.

"This deposit being found in our hands only on account of that confidence which the proprietor has reposed in our good faith, ought to be respected even in open war.'

"Such is the usage in France, in England, and elsewhere in respect to money placed by foreigners in the public funds."—WHEATON, vol. ii, p. 17, quoting Vattel.

As between belligerents, Russia during the Crimean War honourably fulfilled this obligation in the regular payment of the dividends due on her foreign debt. *A fortiori* would the obligation attach as between belligerents and neutrals.

"The debt due to such neutrals may be likened to neutral goods under the enemy's flag, which by the Declaration of Paris in 1866 are declared to be exempt from confiscation.

"Or, applying the principles of law and justice in the ordinary transactions of civilised life, the foreign creditor may be considered as standing in the position of a mortgagee whose claim must be satisfied before the mortgagor or his assigns can make valid title to the estate charged with the debt, and such creditor would have full right to refuse to accept any lessened part of or substitute for his actual security.

"No change of proprietorship of the territories pledged for the payment of the debt could justly, or in accordance with international usage, impair or even vary the security without the consent of the bondholder, direct or indirect.

"And it may even be urged in the present case that the bondholders ought to have priority of claim over any fresh debt, be this in the form of a war indemnity or of any other charge posterior to the creation of the original one."

"Should, then, any cession of Turkish territory be proposed, it will be the duty of the Governments of the various countries whose respective subjects are interested in this question, to protect their rights and secure them from loss, by ensuring a just and proper provision for them in the treaty of peace which, it may now be expected, will be made, or in such other manner as will be equitable.

"Such protection may well form one of the subjects for deliberation and adjudication by the European congress which must be called together to settle definitely the Eastern Question.

"Many precedents enforcing the principle that debts attaching to countries are to be respected—that on alienation such debts were adopted by the successive proprietors, and that in cases of severance such debts were duly apportioned, may be found in many treaties of the present century, and the following (*inter alia*) may be adduced:—

"1st. By Article 8 of the Treaty of Luneville, in 1801, it was determined that the new possessors of ceded countries (including the territories on the left bank of the Rhine) should be charged with the debts hypothecated thereon. On the fall of Napoleon it was provided by Article 21 of the Treaty of Paris, in 1814, that the debts specially hypothecated in their origin on the countries which ceased to belong to France, or contracted for their internal administration, should remain chargeable on such countries. And in pursuance of this stipulation, it was enacted by Article 25 of the Treaty of Vienna of 1815, that the king of Prussia should, on his acquisition of the said countries on the left bank of the Rhine, take upon himself all the charges and all the stipulated engagements with respect to those countries detached from France by the above-named Treaty of Paris.

"2nd. On the renunciation by the Grand Duke of Tuscany of that duchy, the debts duly hypothecated on it were passed over to its new possessor the duke of Parma (Treaty of Luneville, Article 5). On the restoration of the Grand Duke of Tuscany to that duchy, it was (in pursuance of Article 21 of the Treaty of Paris) enacted by Article 100 of the Treaty of Vienna, that the Grand Duke should hold the grand duchy in such manner as he possessed it previous to the Treaty of Luneville.

"3rd. On the separation of Belgium from Holland, a division was made of the public debt of the kingdom of the Netherlands, and a part of it was, by Article 13 of the treaty of 1839, transferred from the debit of the great book of Amsterdam or from the debit of the general treasury of the king of the Netherlands, to the debit on the great book of Belgium.

"4th. On the separation of Texas from Mexico, the former republic, by convention of 14th November, 1840, took upon itself a portion of the capital of the foreign debt contracted previously by the Mexican Government.

"5th. On the separation of the Ionian Isles from Great Britain, Greece undertook the public debt and other engagements attached thereto (treaty of March, 1860.)

"6th. On the acquisition by Italy of parts of the papal territories, a repartition was made in 1866-68, whereby a proportionate part of the pontifical debt was transferred to the great book of Italy, in consideration for the annexation to Italy of the provinces of Romagna, the Marches, Umbria, Benevent, &c.

"7th. On the cession of Lombardy to Italy, the latter undertook the charge of portions of the Monte-Lombardo-Veneto debt and of the national loan of 1854 (Treaty of Zurich, 10th November, 1859, Article 7, &c.; convention of 9th September, 1860.)

"8th. On the cession of Venice, and the union of the Lombardo-Venetian kingdom to Italy, the latter took upon itself the debts charged on the ceded territories (Treaty of Prague of 23rd August, and treaty of 8th October, 1866).

"9th. On the annexation of Savoy and Nice to France, the latter became charged with a portion of the Sardinian public debt (treaty of 24th March, 1860, Article 4, and convention of 23rd August, 1860, Article 1).

"10th. On the severance of the duchies of Schleswick-Holstein and Lauenburg from Denmark, the public debt of the latter was apportioned, and part of it was charged on the duchies, and was guaranteed by Austria and Prussia (treaty of 30th October, 1864, Articles 8—11)."

To these cases must be added that of Virginia and Western Virginia, created during the Confederate War, but of which the detailed apportionment is not complete.

Under the empire of Napoleon the First, the principle was acknowledged, and an amount inscribed on the great book of France. This appears to have been (Bernard Cohen, "Compendium of Finance") for

	Yearly. £
Belgium	160,000
Left bank of Rhine	16,000
Piedmont	43,600
Liguria	14,000
Parma and Placentia	2,500
Sundries	7,000

These were large amounts for that period. An interesting case is that of the debt of the Grand Duchy of Warsaw. In 1811 it

passed into the possession of the King of Saxony, who raised a loan at Paris on the special hypothecation of the State salt mines of Wolisla. The Grand Duchy in 1814 passed into the possession of Russia. This transaction is not provided for directly by the treaties of 1814 and 1815, but was provided for by two additional articles, which appointed commissioners for the settlement of all such claims.

In the case of the claim of the German and English bondholders of the Roumanian railway debentures, which were repudiated by the Government of Roumania, Prince Bismarck expressed the opinion that the Government of Roumania ought not to be allowed to be judge in its own cause, and his support was given to a proposition that the subject should be referred to a joint committee of the protecting Governments, in which Roumania and the bondholders should each have a representative.

As the German bondholders gave way to the threats of the Roumanian Government, this solution was never reached, or it would have been a great step.



DISCUSSION *on* MR. HYDE CLARKE'S PAPER.

MR. GUEDALLA thought that the impression produced by the reading of Mr. Hyde Clarke's paper must be a very painful one, because it showed the dark side of the question. The greater part of the foreign loans referred to were made to South America; and some very fine countries, such as Turkey and Egypt, were in part ruined by the very outrageous rates of interest charged, these being something like 12 and 14 per cent. In fact, from the outset collapse was a perfect certainty. Countries like England and France could afford to bear this rate of interest, but the other countries he referred to could only live by borrowing, and must again borrow to pay, and he could not but think that they were more sinned against than sinning. If these countries had been charged a fair rate of interest, and if the loans had been properly applied to the development of the country, they would have been valuable outlets for trade and commerce. What had been the consequence? In the first place the loans were at 12 and 14 per cent., and the interest on the floating debts of Turkey and Egypt had been raised for a number of years at 25 and 30 per cent., and that of a fine country like Spain at 20 per cent. It was only now, in fact, that the system was exhausted. It was not confined to this country alone, but to other foreign countries. He did not think, however, that there had been a very great loss, because although some of the smaller investors had been pinched, some of the loan contractors had made millions. This money had not left the country; but in the case of those who received high rates of interest, they had expended it in several luxuries, such as houses at high rents in London, and residences at the sea-side which were scarcely obtainable four years ago. He could enlarge on the subject, but seeing several members present who no doubt wished to speak, he would refrain from doing so.

MR. NEWMARCH, F.R.S., spoke at some length. He pointed out that the only real defence against bad investments in foreign funds was for the lenders themselves to exercise care and common sense. He awaited with much interest the report of the Royal Commission on the Stock Exchange.

MR. L. L. COHEN thought that that portion of the statistics in the paper which was based on the returns of the income tax was absolutely fallacious, for the reason that many of the dividends on the loans introduced into this country during late years were payable in London as well as abroad; the consequence being that it was merely a question of exchange at the time, where the holder elected to cash his dividends. If the lender received the dividends abroad, in returning his income to the Government, he would not distinguish the particular stock from which his income was derived, but would merely lump it together; therefore any subdivision based on

the income tax returns was entirely illusory, and being so, he would suggest that when the paper was published it should be left out, because no one knew better than the banker that such a thing was only misleading. Dividends were also sent here from abroad, and sometimes foreigners, rather than take the trouble to swear affidavits, paid the income tax in this country. This, on the other hand, would give an exaggerated idea of the English holdings of foreign securities. As to the amount of investments in foreign stocks within the last few years, they might be put at 400 million or 600 million pounds, or any other figure, but all that was a pure fancy. On certain days there were from 2 million to 3 million pounds of stocks going from one city to another—from England to Paris and from Paris to England; so that it was impossible to say at the end of the year how many millions of stock had changed hands. There were therefore no means of estimating the investments in foreign stock during the last four or five years or at any time whatever. The amount quoted on the Exchange could be ascertained, and in the foreign list it recently came to 2,200 million pounds. But this was no test of the holdings, for of the 5 per cent. debt of France there was 240 million pounds, of which probably not 5 million pounds were held in this country; therefore as regards the holdings in this country, the figures were entirely fictitious. It had been said that foreign bonds were made instruments of gambling, but it was difficult to say what was meant by a thing being of itself an instrument of gambling. The reason why a foreign bond was of an easily negotiable value, and had a recognised status in the world as a convenient system of exchange, was owing to the modern system of telegraphing, and the close connection between one place and another. He was in the business himself, and he did not know of any specific transaction in any foreign or continental security—whether it was a transaction resulting from speculation or what was called a *bona-fide* bargain. There was nothing more clear than that a distinction could never be made between speculation and absolute business in any trade whatsoever, and to attempt to curb the range of speculation would naturally land them in difficulties which their predecessors got out of when they abolished the old laws of regrating and forestalling. The only safeguards for prudence were those that Mr. Newmarch had recommended, and the press he considered the principal one. Taking the case of Honduras, which had about 100,000 inhabitants, he was astonished that there was nobody at the time of the loan who, through the press, showed what the condition of that country really was. But such a state of things was not likely again to occur. Considering the present freedom of the press in this country, it was not likely it would be hushed into silence, as in former years. The function of the Stock Exchange was that of a judge. They were bound to judge a case by the documents before them, and they could not travel behind these, nor consider any circumstances but those which were pertinent to the points raised, just as every tribunal had to take cognizance only of the facts pleaded and proved.

Bank) said he agreed with Mr. Newmarch that dealing in foreign loans was as legitimate a mode of business as dealing in any other commodity. The real evil had been the pressing upon the public spurious articles as if they were genuine. He also agreed that people should take care of themselves when parting with their money; but the small investors in this country had not an opportunity of considering all the facts connected with a loan, and were entitled to every sympathy. He was, however, of opinion that on many investors or rather speculators, sympathy was altogether thrown away. The question was whether there was any possible way by which these spurious foreign loans could be kept out of the market. He thought there was enough evidence given before the Foreign Loans Committee to show that the Stock Exchange was not, as was claimed for it, altogether free from blame. Reference has been made to the Honduras Loan; now with respect to the issue of the first loan, it was perfectly certain that out of the whole subscription, amounting to 500,000*l.* or 600,000*l.* for that loan, which included many leading members of the Stock Exchange for large sums, there was not more than 50,000*l.* or 60,000*l.* taken by the public, the other allotments having all been sold, and there was surely a power on the Stock Exchange to check this. He quite agreed with Mr. Newmarch, that the Government could not be made the collector of foreign debts, nor could a foreign Government be made defendants in one of our courts of law, because, even if a judgment were obtained against them, it was not easy to see how it was to be enforced. This was a difficulty which would always occur to a judge.

Mr. GIFFEN said they must all thank Mr. Clarke for his paper, which contained a great amount of information, and was better suited for reading and reference than for hasty discussion. There was one incidental question which had been raised which he wished to remark upon. Mr. Cohen seemed to think that the mischief done by "foreign loans" during the last few years would have been a great deal less if the press had done its duty better, and he looked forward to the press doing that duty much better in the future. But perhaps Mr. Cohen forgot a great deal of what the press really did during the issue of these foreign loans. He (Mr. Giffen) was connected with the press during a great part of that time, and he could say that it did service in warning the public against such investments; but the infatuation of the public at the time was so strong, that he did not think the strong attacks on such loans deterred many people from investing in them. The writing in some quarters was looked upon by many persons as being the proper thing to be said by respectable journals, but as very antiquated. When people were led to believe they could make 20 per cent., the warnings of the press were of no effect. It must always be remembered that if there was any bad business on foot, it would imitate some good business that had preceded it. It appeared from Mr. Hyde Clarke's paper that there had been a vast amount of good business connected with foreign loans, and many people having made money by them were more liable to be deceived

by the inferior article. It must not be expected that any amount of writing in the press could prevent a great deal of business being done in false and fictitious securities, which sometimes imitated good securities. In reference to the stigma which Mr. Newmarch desired to fix upon the United States, he thought there was this difficulty, that it would be found that the Government of the United States had never issued a loan in the London or in any of the European markets at all. The bonds had been issued in the United States, and the people who bought bonds in that way must be subject to the contingencies of United States' legislation, and if the United States did not legislate beyond the usual limits of Governments in such matters, there was no blame to be attached to them for what they had done. It seemed to him rather a strong thing that, because the Silver Bill had been passed, the stigma of repudiation should be fixed upon the United States.

The PRESIDENT said he was sure he was expressing the opinion of everybody present, when he said the paper was a most interesting and valuable one; in some respects he thought it might even have been fuller than it was. He agreed with Mr. Cohen that the returns given in it on the authority of the Inland Revenue Department, with regard to the investments of the people of this country in foreign loans were not to be relied upon. He felt satisfied that it did not by any means represent the total of foreign investments, and he thought Mr. Hyde Clarke would do well to cut that part out of the paper. It would be extremely interesting to know the real investments of Englishmen in foreign funds and investments; but he thought it was impossible to arrive at an accurate estimate as to what these were. One interesting thing would be to know to what extent the funds of a country like France, which were to a great extent borrowed from other countries in a time of national difficulty, gradually filtered back to the country itself. He believed that a large proportion of the great French loan which was raised during the Franco-Prussian war in foreign countries, especially in Holland, had filtered back to France, and was now in the hands of Frenchmen. Adverting to another point, he would say that the paper was rather a melancholy one, because it showed how great the losses of the English investors had been, and how foolish they had been in investing in all kinds of worthless security. The two great loans which had been made in recent years, and which had been most profitable to investors, had been entirely neglected by the English public. He referred to the great French loan and the American loan. He thought he was right in saying that a comparatively small amount of these two loans had been raised in England, while loans such as the Confederate loan and the Honduras loan had been eagerly taken up. He agreed with what Mr. Giffen had said with reference to the United States loan. He thought that the United States were hardly open to the observations made by Mr. Newmarch. They had passed the Silver Bill—no doubt an extremely unwise one, but he did not think it should be described as absolutely fraudulent. If Mr. Newmarch looked at the contracts made by the United States Government, he

would find that there was no positive obligation to pay their interest in gold. At the same time, he (the President) thought that their action in passing the law of adopting the silver standard as well as the gold one was extremely unwise, and he would not for a moment justify it; but still it was not open to the charge of breach of contract. As to the general tendency of Mr. Hyde Clarke's paper, namely, that part in which he advocated the action of the Government in regard to the recovery of foreign loans, he entirely disagreed with him. He could see no folly so great as the Government of this country taking such a part. It was most important to maintain the principle that investors must take care of themselves, and must not look for the aid of Government in recovering their money. There was one remark made by Mr. Guedalla to which he would take exception, namely, that Turkey had been ruined by borrowing. On the contrary, he was of opinion that Turkey had rather gained than lost. He thought he was right in stating that from the time the first loan was raised by Turkey in England and Europe, not one farthing in the shape of interest had been remitted for the payment of interest; fresh loans had been continually raised, and the latest investors had paid the interest of the former investors. Turkey had derived benefit, because she had built a certain number of iron-clad vessels, and filled her arsenals with equipment out of the earlier loans. It could scarcely be said that she had lost by repudiation. It was her unfortunate creditors who had been ruined, though possibly if she had not borrowed so much she might have had something of credit to fall back upon during her great emergency. The paper showed how extremely imprudent it was to lend to countries like Turkey and Egypt, who were continuously borrowing in the money market. It seemed that the inevitable result would be repudiation; and he could only hope that those who read the paper would become more experienced in investments than they had hitherto been. He thought that the main security against the fraudulent issue of loans of the kind referred to by Mr. Clarke, was the publicity given to them by the press, and possibly something might be done to enforce to a greater extent the criminal law. It was also possible that the report of the committee which was inquiring into the nature and constitution of the Stock Exchange might suggest a further remedy; but the main remedy for all these things was publicity; with the spread of knowledge investors would not be so reckless in their dealings, and with publicity impecunious States would find greater difficulty in imposing upon credulous investors.

Mr. HYDE CLARKE, in reply, said that his object had been to show that accuracy was impossible; but it would be found, on a perusal of the paper, that he had brought forward some material facts which, on the subsequent consideration of the subject, would afford the bases for obtaining fuller information. There were several remarks made by the President which he would like to have answered if time had permitted. He believed that the people of this country had made considerable profit by their transactions in the United States loans during the war. He thought that the

remarks of Mr. Newmarch with regard to the United States should be accepted with a considerable degree of caution, because the United States loans, as would be found explained in the paper, were all internal loans, under the jurisdiction of the country in which they were issued, and it was as competent for the legislature of the United States to deal with the money affairs of the country, as it was for the legislature of this country to pay the interest on consols in bank notes or sovereigns. With regard to the question of Turkey, it would be found that in the beginning she met her engagements, and that a considerable part of the Turkish resources was applied, not strictly to the payment of the creditors, but to the payment of the manipulators of these loans; consequently there was a very great burden on the finances of Turkey, without advantage to the Government or its creditors. The remark made with regard to the intervention of the Government would, he thought, be found very much in accordance with what he had laid down in the paper. At the same time he had suggested a mode by which the Government might do a little more than it now did, and might be able better to accord with the professions it occasionally made to deputations. Mr. Cohen's explanation, although it touched the question to a certain extent, did not touch in another part, which was, that those persons who sold their coupons were very apt to forget to make any returns to the Government at all. These subjects had been under the consideration of the inland revenue, and it was very desirable these frauds should be checked. With regard to the fraudulent loans, he thought that if greater supervision had been exercised, more might have been done; but he might claim the merit in the case of the Honduras Loan and the Ship Railway Loan, that the action had been such that it was withdrawn in a few days, and he thought that the committee of the Stock Exchange might in several cases have exercised a judicious action. The remarks of Mr. Newmarch were in some cases a *reductio ad absurdum*, and not strictly applicable. Investors were in too many cases deceived by the names of apparently respectable houses, and by the faith which was naturally given to the representations made by them.

MISCELLANEA.

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I.—*General Results of the Commercial and Financial History of 1877.*

THE following extracts are from the supplement to the *Economist* of 9th March, 1878, in continuation of the series of similar notices which have appeared annually in the *Journal*, dating from 1863:—

"1877 has been a worse year, commercially, than 1876. In 1876 there were some indications that the corrective process rendered necessary by the extravagant heights to which cost of production had been carried in 1871-73 in every department of trade and in every part of the world, had made some progress towards a radical cure. But the experience of 1877 has shown that the evils had penetrated so far into the entire industrial system, that a longer and more severe depression has been required to cure them. There have been special aggravations of distress in 1877, arising (1) from the long political conflict in France between Marshal MacMahon and the Constitutional party; (2) from the severe famine in southern India; (3) from the extending collapse of railway investments in the United States, and the distrust excited by the growing power of the parties there who oppose the resumption of cash payments, and clamour for the repudiation, more or less complete, of public obligations; and (4), above all, from the war between Russia and Turkey, and the extreme uncertainty of all European politics.

"At home we have had a third or fourth bad harvest; cattle plague, and general and real distress among the greatest of domestic interests—that of agriculture. The iron trade also has been overtaken by two severe difficulties at the same moment—that is to say, the unusual badness of trade has not only greatly reduced the regular demand for iron manufactures—notably for iron rails—but the rapid development of the production of steel, in better qualities and at lower prices, has virtually superseded a large part of the iron making establishments in the country; thus aggravating a depressed trade by the severe losses arising from the cost and uncertainties of a new manufacture. With a bad iron trade, there has, of course, been a bad coal trade.

"On the Continent, and in the United States, the depression has been even more severe than with ourselves; and France, which had comparatively escaped till 1876, must now be included in the list of distressed countries.

"The harvest of 1877 in these islands was seriously unfavourable, as will appear in detail in the reports given *passim*, under the head of the 'Corn Trade.'

"The prices have been as follows:—

Gazette Average Price of Wheat (per Imperial Quarter) in United Kingdom, immediately after Harvest, 1871-77, and Total Average Gazette Price of Calendar Years.

After Harvest.		Calendar Year Averages.	
	s. d.		s. d.
1877	56 -	1877	56 9
'76	47 -	'76	46 2
'75	46 -	'75	45 2
'74	46 1	'74	55 9
	<hr/>		<hr/>
	49 -		51 -
	<hr/>		<hr/>
1878	64 2	1878	58 8
'72	58 6	'72	57 -
'71	56 3	'71	56 8
	<hr/>		<hr/>
	59 7		57 5

"In the United States the crops are described as among the most abundant ever yielded, and it has been chiefly by reason of the ample American supplies that the prices on this side have been brought down from 56s. in October to 52s. in January (1878). But the farmers are in great distress, and for the first time for several years there are complaints among land agents that eligible tenants for vacant farms are very difficult to get. The potato crop was a very general failure, and the fruit crops were short. Nothing but the free trade in corn and other imports has prevented 1877-78 from being a year of marked scarcity.

The American Meat Supply, 1877.

"During 1877 considerable improvements were thought to be taking place as to the quantity of meat at the disposal of the population of this country, and that it was to prove a great boon in the cheapness of food to all classes. After a fair trial, what is our experience at the results obtained? We fear they are anything but what were expected. True, large quantities of beef came over from New York and Canada, during the first half of 1877; fair in quality and good in condition, but as soon as the weather became hot and unfavourable, its condition deteriorated very much, and a considerable falling off took place, both in the quantity and quality. But the native article has not fallen in price, and we very much regret to say that prospects of a cheaper meat supply are not near at hand.

"The estimated dead weight of foreign animals imported in ten

months ended 31st October, in 1876, and 1877 respectively, will stand thus:—

	Average Dead Weight per Head.	1876.	1877.	Decrease in 1877.
Oxen and bulls cwt.	5½	860,108	758,511	101,597
Cows	5	258,560	115,845	142,715
Calves	1	41,286	28,279	13,007
Total cattle.....	—	1,159,954	902,635	257,319
Sheep and lambs	½	456,417	381,984	74,433
Swine	1	40,176	18,630	21,546
Total weight	—	1,656,547	1,303,249	353,298

“The total decrease in weight of meat imported as live animals in the last ten months was, according to this estimate, 353,298 cwt., or scarcely more than a fifth below the quantity in the corresponding period of 1876.

“Now, it is very satisfactory to find that this diminution of supply was far more than compensated by a great increase in the arrivals of fresh dead meat. In the ten months we received as follows (in cwts.):—

Kinds.	1876.	1877.	Increase, 1877.
Beef, fresh or slightly salted	96,847	412,034	315,187
Meat unenumerated, principally fresh mutton	66,198	98,433	27,235
Meat preserved, otherwise than by salting	208,363	388,465	180,102
Fresh pork	20,309	7,712	— 12,597
Total cwts.	391,717	901,644	509,927

“The following statement seems to place on a scientific basis the popular opinion frequently expressed regarding the greater mildness of the climate of this country, as compared with periods within the recollection of old people:—

“ ‘ Mr. James Glaisher, the secretary of the British Meteorological Society, has furnished a table of meteorological observations extending over a century, which reveal the fact that the climate of these islands is actually becoming warmer year by year, and that this change has been going on for one hundred years. The records from which these conclusions have been drawn are unimpeachable, and so detailed and minute are they, that they cannot possibly be otherwise than accurate. As Mr. Glaisher in his report says, long continuance of frost and frequent falls of snow are facts that can be recorded without instruments as well as with them; and when, in addition to these records, we have the temperature recorded by an instrument so sensitive and delicate as the thermometer, there is no room for doubting the accuracy of the results. Thus, we find, by comparing the later tables with the earlier ones, that our climate in the last hundred years has every year been growing warmer at the rate of about 0·11 degree per year; that the

mean temperature of the year is now 2 degrees warmer than it was in 1771; that the month of January is now 3 degrees warmer than it was in any January at the latter end of last century, whilst the winter months are all much warmer, and every month of the year is somewhat warmer than before. The independent observations for the last ten years forcibly confirm the deductions from those of the more extended period I have named. Mr. Glaisher says it now becomes a question whether any part of the world has become 2 degrees colder in its mean annual temperature, or whether the world itself has increased in warmth by 2 degrees. If the latter, some interesting astronomical facts would follow. At present the observations show that the further we go on there is either a steady secular increase in the temperature of the country, or that we are in a long cycle of increasing temperature, out of which we shall probably gradually pass into a cycle of lowering temperatures. In the meantime, the fact being conclusively established that our climate is warmer, advantage should be taken by agriculturists to introduce for culture cereals and vegetables which the colder climate precluded.'

"The following table gives the production of gold and silver in the United States, 1848-77:—

Gold and Silver, 1848-77. Production in California and United States, according to Statement of Professor Raymond, United States Commissioner of Mining.

[In Mln. £. (£ = \$). 0,000's omitted, thus .01 = 10,000.]

Years.	Gold.	Silver.	Total.	Years.	Gold.	Silver.	Total.
	Mln. £	Mln. £	Mln. £		Mln. £	Mln. £	Mln. £
1848.....	2,00	.01	2,01	1861.....	8,60	.40	9,00
'49.....	8,00	.01	8,01	'62.....	7,84	.90	8,74
'50.....	10,00	.01	10,01	'63.....	8,00	1,70	9,70
Average	6,30	.01	6,41	'64.....	9,22	2,20	11,42
				'65.....	10,64	2,25	12,89
				Average.....	8,86	1,45	10,31
1851.....	11,00	.01	11,01	1866.....	10,70	2,00	12,70
'52.....	12,00	.01	12,01	'67.....	10,34	2,70	13,04
'53.....	13,00	.01	13,01	'68.....	9,60	2,40	12,00
'54.....	12,00	.01	12,01	'69.....	9,70	2,60	12,30
'55.....	11,00	.01	11,01	'70.....	10,00	3,20	13,20
Average	11,80	.01	11,81	Average.....	10,07	2,60	12,67
				1871.....	8,70	4,40	13,10
1856.....	11,00	.01	11,01	'72.....	7,20	5,15	12,35
'57.....	11,00	.01	11,01	'73.....	7,20	7,15	14,35
'58.....	10,00	.01	10,01	'74.....	8,43	6,06	14,49
'59.....	10,00	.02	10,02	'75.....	8,40	7,12	15,52
'60.....	9,20	.03	9,23	Average.....	8,00	6,00	14,00
Average	10,25	.12	10,37	1876.....	9,77	7,70	17,47
				'77.....	10,20	9,00	19,20

Note.—The figures for 1876 are from the *New York Chronicle*, 13th January, 1877; for 1877 they are partly estimated.

"The next table gives the usual figures relating to silver sent to the East, &c.

Silver, 1877-88, Shipments to East, Bills Drawn by India Council on India, Imports of Silver into United Kingdom, Average Price in London, and Average Rate of Bank Discounts. (Fixley and Abell's Circular.)

[0,000's omitted, thus 17.00 = 17,000,000.]

Years.	Silver sent to East.	Bills Drawn by India Council.	Imports of Silver into United Kingdom.	Silver Coined in United Kingdom.	Average Price Standard Silver in London.	Average Bank-Rate Discount.
	Min. £	Min. £	Min. £	Min. £	Per oz.	Per cent.
1877	17.00	8.64	21.62	0.42	54½	2½
'76	10.91	11.51	13.56	0.22	52½	2½
'75	3.71	10.84	9.50	0.59	56½	3½
'74	7.09	13.28	11.80	0.89	58¾	3½
'73	2.50	13.94	12.30	1.08	59½	5½
'72	5.65	10.31	11.14	1.24	60¾	4½
'71	3.71	8.44	16.52	0.70	60½	8½
1870	1.58	6.98	10.65	0.33	60½	3
'69	2.36	3.70	6.73	0.07	60¾	3½
'68	1.63	4.14	7.71	0.30	60	2
'67	0.64	5.61	3.02	0.19	60	2½
'66	2.36	7.00	10.78	0.49	61½	7

"The price has recovered from 52½d. to 54½d., and the export to the East has risen, from, say, 11 million pounds in 1876 to 17 million pounds in 1877, the increase being largely due, it is said, to the Indian famine. Under the head of the Money Market will be found the excellent circular of Mocatta and Goldsmid, bullion dealers. The effect of the re-adoption of silver in the United States will be to raise the price of the metal perhaps rapidly.

Wool.

"Prices.—The course of prices is given under the head of the London and Liverpool sales. Subjoined are the quotations for a few leading descriptions on the 31st December, 1872-77:—

	Value on the 31st December.					
	1877.	1876.	1875.	1874.	1873.	1872.
Australian P.P. good to sup. } combing	23½	25	24½	26	28	30
Ditto, good average grease	12½	13½	13	14	15	16
Ditto, Sydney average clothing	18	19½	19	20	22	25
Cape, average fleece	12	14	14	15½	15	17
Buenos Ayres, average grease	6½	7½	7½	7½	7	7½
Peru, middling	11½	14½	14½	14	14	15½
Donskoi, average white carding	9½	10½	11	10½	10	13½
East India, ordinary yellow	7½	8½	9½	9½	10	12
Lincoln hogs	16	19	20	23½	26	28
Cotton, middling New Orleans	6¾	6¾	7¾	7½	8¾	10½
Wheat, annual average, per quarter	56/9	46/2	45/2	55/8	53/8	57/
Bank rate, annual average	2½	2½	3½	3½	4½	4½

"The following figures give, in a fairly trustworthy way, the average value per bale of colonial wool during the past thirteen years :—

[100,000's omitted.]

Year.	Import in Bales.	Average Value per Bale.	Total Value.	
1865.....	432,551	23½	Min. £ 10,2	Average per year 11 min. £
'66.....	455,812	24½	11,1	
'67.....	541,059	20½	11,2	
'68.....	633,134	18½	11,7	
'69.....	633,959	15½	9,9	
'70.....	673,314	16½	11,2	
1871.....	693,990	20½	14,2	Year of transition
1872.....	661,601	26½	17,5	Average per year 18½ min. £
'73.....	708,021	24½	17,1	
'74.....	815,770	28½	18,9	
'75.....	874,218	22½	19,4	
'76.....	938,776	18½	17,6	
'77.....	993,757	18½	18,6	

"The normal average value of colonial wool is about 21l. per bale. Last year's figure consequently falls short of it by about 10 per cent.

"The imports of wool into Europe from the chief sources of production have been as follows (in 1,000's of bales) :—

	Australasian.	Cape.	River Plate.	Total Bales.
1877.....	823,7	169,9	277,0	1,270,8
'76.....	771,2	170,9	272,1	1,214,8
'75.....	699,6	175,5	247,8	1,123,0
'74.....	651,5	164,1	245,8	1,061,6
1873.....	551,9	160,3	264,2	976,5
'72.....	522,8	154,8	237,7	915,5
'71.....	567,0	148,8	221,8	937,6
'70.....	549,2	145,0	221,3	915,7

Cotton Trade.

"Messrs. Ellison and Co. (Liverpool) report :—

"'Twelve months since we stated that the best that could be said of 1876 was that, from a business point of view, it was less unsatisfactory than 1875, but that this faint amendment was due entirely to the improvement which took place during the last three months of 1876. But 1877 had not a single redeeming feature. It was bad throughout, and altogether the worst year for the cotton industry experienced since the American war.

"The unfavourable character of the 1877 business as concerns spinners and manufacturers, but especially the former, is shown clearly enough in the following comparative statement of the average prices of cotton, yarn, and cloth during the three years 1875-77 :—

Description.	Average Prices per Pound.			1877 compared with	
	1875.	1876.	1877.	1876.	1875.
Cotton—	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>
Middling upland	7½	6½	6¼	⅛ higher	1⅞ lower
Fair Dhollerah	5	4½	5⅞	⅛ "	⅞ higher
Yarn, best seconds—					
30's water twist	12⅞	11⅞	10½	⅞ lower	1½ lower
40's mule twist	12⅞	11½	10½	⅞ "	1½ "
Cloth, per lb.—					
Printers, 4½ lbs.	13⅞	11⅞	11⅞	½ higher	1½ "
" 5½ "	14⅞	12⅞	12⅞	½ lower	1½ "
Shirtings, 7 "	13½	11½	11½	½ "	2 "
" 8½ "	12	10½	10½	½ "	1½ "
Average prices—					
30's and 40's twist	12½	11½	10½	½ "	1½ "
Printers and shirtings	13⅞	11⅞	11⅞	½ "	1½ "
Margin between—					
Uplands and twist	5½	5	4⅞	⅞ less	⅞ less
" cloth	5½	5⅞	5½	⅞ "	⅞ "

" ' Here, it will be seen, that while on an average cotton has advanced ⅛*d.* for Uplands and ⅞*d.* for Dhollerah, yarn has declined ⅞*d.* to ⅞*d.* per lb., and piece goods ½*d.* to ½*d.*, with an exceptional advance of ½*d.* in one description of printers. The net result, as shown in the last two lines of the table, is that the average margin between Uplands and twist was in 1877 ⅞*d.* per lb. less than in 1876, and ⅞*d.* less than in 1875, and that between Uplands and cloth ⅞*d.* per lb. less than in 1876, and ⅞*d.* less than in 1875.

" ' *The Consuming Power of Europe and the United States, 1877.*—The following particulars of the number of spindles in the various countries of Europe and in the United States, and the average consumption of cotton per spindle, when at full work, are reproduced from our autumn Annual:—

Countries.	Number of Spindles.	Pounds per Spindle.	Total.	Bales of 400 lbs.	Average per Week.
			Min. lbs.		
Russia and Poland	2,500,000	65	162,	406,250	7,812
Sweden and Norway ...	310,000	80	24,	62,160	1,195
Germany	4,700,000	55	258,	646,250	12,428
Austria	1,558,000	67	104,	260,965	5,019
Switzerland	1,850,000	25	48,	120,625	2,320
Holland	230,000	60	13,	84,500	663
Belgium	800,000	60	48,	120,000	2,308
France	5,000,000	48	240,	600,000	11,538
Spain	1,775,000	48	85,	213,000	4,096
Italy	880,000	67	58,	147,400	2,835
Total continent	19,603,000	58.2	1,040,	2,611,150	50,214
Great Britain	39,500,000	33	1,303,	3,258,000	62,600
Total Europe	59,103,000	40	2,343,	5,869,150	112,814
United States	10,000,000	63	630,	1,575,000	30,300
Grand total	69,103,000	43	2,973,	7,444,150	143,114

“ We have already estimated the minimum requirements of Europe at 2,245,000,000 lbs., so that even with an American crop of 4,700,000 bales there is a deficit of 37,440,000 lbs., or 93,600 bales of 400 lbs. each. There is, besides, a reduction of 257,000 bales in the stocks in the ports, and a decrease of at least 240,000 bales in the quantity held by spinners—making a total deficit of about 590,000 bales.

“ *The Cotton Mills of India.*—The following statement showing the progress made by Indian cotton mills, is reproduced from our autumn Annual:—

	Spindles at Work.	Cotton Consumed.		
		Min. lbs.	Bales of 500 lbs.	Bales per Week.
1861	338,000	25,3	65,000	1,250
'74	593,000	44,4	114,000	2,190
'75	886,000	66,4	170,000	3,270
'76	1,124,000	84,3	216,000	4,150
'77	1,231,000	92,3	237,000	4,560

“ It may be that some portion of this increased production by steam power has taken the place of the native hand-made yarns and goods; but most unquestionably the bulk of the out-turn has gone to supply wants that would otherwise have been met by imports from Great Britain.

An Estimate of the Value of the Production of Cotton Manufactures in Great Britain, with the Cost of Cotton Consumed, and the Balance Remaining for Wages, all other Expenses, Interest of Capital and Profits, for each of the Past Eleven Years.

[In million pounds; 85,3 = 85,300,000.]

Year.	Total Value of Goods Produced.	Cost of Raw Cotton.	Left for Wages, Profit, and other Expenses.	Year.	Total Value of Goods Produced.	Cost of Raw Cotton.	Left for Wages, Profit, and other Expenses.
	Min. £	Min. £	Min. £		Min. £	Min. £	Min. £
1877....	85,3	32,5	52,7	1871....	101,9	40,8	61,1
'76....	89,8	32,8	57,0	'70....	93,1	42,1	51,0
'75....	95,4	36,5	58,9	'69....	86,1	43,7	42,4
'74....	100,5	40,2	60,3	'68....	91,7	40,9	50,7
'73....	104,6	45,4	59,1	'67....	90,4	41,2	49,1
'72....	102,2	48,0	54,2				

Cotton Cloth and Yarn, Exported and Estimated as Actually Consumed at Home, 1877-86, in Millions of Pounds Weight. (Ellison's Circular.)

[000,000's omitted.]

1	234			5	6	789		
Years.	Yarns and Cloth Exported.			Home Consump- tion, Yarns and Cloth.	Total Weight.	Average Prices of Raw Cotton.		
	Yarn.	Cloth.	Total.			Imported.	Exported.	Home Consump- tion.
Min. lbs.	Min. lbs.	Min. lbs.	Min. lbs.	Min. lbs.	Per lb. d.	Per lb. d.	Per lb. d.	
1877....	227,	768,	995,	105,	1,100,	6½	5½	6½
'76....	232,	735,	967,	164,	1,181,	6½	5½	6½
'75....	215,	713,	928,	160,	1,088,	7½	5½	7½
'74....	220,	726,	946,	173,	1,119,	7½	6	7½
1873....	215,	688,	903,	175,	1,078,	8½	7	8½
'72....	212,	698,	910,	129,	1,039,	9½	7½	9½
'71....	193,	680,	873,	199,	1,072,	8	7	8½
'70....	186,	616,	802,	140,	942,	9½	8½	9½
1869....	169,	535,	704,	112,	816,	11½	10	11½
'68....	174,	548,	722,	160,	882,	9½	8½	9½
'67....	164,	523,	687,	145,	832,	10½	9½	10½
'66....	134,	491,	625,	145,	770,	13½	11½	14

Exports of Cotton Piece Goods, 1877-74, in Quantities (Millions of Yards) and Percentage of Totals. (Ellison's Circular.)

[000,000's omitted, thus 1,546, = 1,546,000,000.]

Exported to	Quantities.				Per Cent. of Total.			
	1877.	1876.	1875.	1874.	1877.	1876.	1875.	1874.
	Min. yds.	Min. yds.	Min. yds.	Min. yds.	Per cent.	Per cent.	Per cent.	Per cent.
India and Egypt	1,546,	1,400,	1,344,	1,397,	40.3	38.2	37.8	38.8
China	527,	597,	436,	464,	13.7	16.3	12.2	12.9
Turkey and Levant	313,	323,	282,	806,	8.2	8.8	7.9	8.5
	2,386,	2,320,	2,062,	2,167,	62.2	63.3	57.9	60.2
United States	61,	55,	80,	105,	1.6	1.5	2.2	2.9
Rest of America and West India }	606,	508,	556,	605,	15.8	13.9	15.6	16.8
	3,053,	2,883,	2,698,	2,877,	79.6	78.7	75.7	79.9
Italy, Austria, &c.	218,	237,	214,	208,	5.7	6.4	6.0	5.8
Germany	128,	103,	116,	116,	3.3	2.8	3.3	3.2
Other Countries	437,	445,	532,	402,	11.4	12.1	15.0	11.1
	3,836,	3,668,	3,560,	3,608,	100.0	100.0	100.0	100.0

United Kingdom, 1877-86. Estimated Value of Raw Cotton Imported, Re-Exported, and Consumed. (Ellison's Circular.)

[00,000's omitted, thus 34,0 = 34,000,000l. The sales are given in full.]

Years.	Import.		Re-Exported.	Consumed, United Kingdom.		
	Value.	Price.	Value.	Value.	Weight.	Bales per Week, 400 lbs. each.
	Mln. £	Per lb. d.	Mln. £	Mln. £	Mln. lbs.	No.
1877.....	34,0	6½	4,0	32,5	1,237,	59,510
'76.....	37,2	6½	4,2	32,8	1,274,	61,250
'75.....	42,9	7½	6,1	36,5	1,230,	59,160
'74.....	47,1	7½	6,0	40,2	1,266,	60,870
1873.....	54,2	8½	6,1	45,4	1,246,	59,910
'72.....	53,3	9½	8,5	48,0	1,175,	56,510
'71.....	55,9	8	9,8	40,8	1,205,	57,950
'70.....	51,0	9½	8,2	42,1	1,071,	51,520
1869.....	55,2	11½	11,3	43,8	940,	45,140
'68.....	52,0	9½	11,6	41,0	996,	47,890
'67.....	53,8	10½	14,0	41,2	954,	45,890
'66.....	75,8	13½	19,5	51,9	800,	42,829

Metals.

W. Fallows and Co. (Liverpool) report:—

"The history of the iron trade during 1877 is one continued chronicle of depression, unrelieved by any silver lining to that dark cloud which has hung over it for the last three years. The unprofitable nature of the trade has received unmistakable proof in the failure of some, and the serious losses sustained by nearly all, of the large limited companies which have, during the last few years, taken over many of the most important works in the country.

"This depression is mainly traceable to two causes—over-production and foreign competition.

"We give below the lowest prices which have ruled between 1851 and 1877, and the exceptionally high prices of 1873, by way of contrast.

Years.	Welsh Bar in Liverpool.		Rails in Wales.		Scotch G.M.B. Pig Iron, f.o.b. Glasgow.		S. Staff. "List" Iron.	
	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.
1851	4 17	@ 5 7	4 15	@ 5 -	1 18	@ 2 3	6 15	—
'62	5 10	" 6 10	5 10	" 6 -	2 9	" 2 16	7 15	—
'68	5 15	" 6 10	5 10	" 6 -	2 11	" 2 14	7 15	—
1873	11 10	" 13 -	11 -	" 12 -	5 1	" 7 5	12 5	@ 16 15
1877	6 -	" 6 12	5 -	" 5 5	2 11	" 2 17	9 5	" 9 15

"The following figures exhibit the production, exports, stock, &c., 1867-77:—

Years.	Production of Great Britain.	Total Stock 31st December, in Scotland and North of England.	Average Price of Scotch Pig Iron.	
	Tons.	Tons.	s.	d.
1867.....	4,761,023	644,345	52	6
'68.....	4,970,206	720,927	52	9
'69.....	5,445,757	735,607	53	3
'70.....	5,963,515	782,345	54	4
'71.....	6,627,179	558,331	59	—
1872.....	6,741,929	235,628	101	10
'73.....	6,566,451	200,328	117	3
'74.....	5,991,408	185,737	87	6
'75.....	6,365,462	244,258	65	9
'76.....	6,555,997	545,541	58	6
'77.....	*6,350,000	809,797	54	4

Years.	Exports.			
	Pig Iron.	Rails.	Other Descriptions.	Total.
	Tons.	Tons.	Tons.	Tons.
1867.....	567,319	582,420	818,286	1,968,025
'68.....	552,999	583,488	905,365	2,041,852
'69.....	710,656	888,010	1,076,665	2,675,331
'70.....	753,139	1,059,392	1,012,744	2,825,475
'71.....	1,057,458	981,197	1,130,564	3,169,219
1872.....	1,331,143	945,420	1,106,199	3,382,762
'73.....	1,142,065	785,014	1,030,734	2,957,813
'74.....	776,116	782,665	928,741	2,487,522
'75.....	947,827	545,981	963,498	2,457,306
'76.....	910,005	414,656	899,809	2,224,470
'77.....	881,442	497,924	965,285	2,344,651

* Estimated.

"As regards the very important topic of the revolution which is now in rapid progress in the Iron Trade, by the substitution of steel for the wrought qualities of iron, we would refer to the following extracts from the intelligent circular of the well-known firm of iron merchants in London, Wm. Bird and Co., Laurence Pountney Hill. They say:—

"It has been often urged, with some show of reason, that when iron gave place to steel, our manufacturing importance would diminish, and that our want of suitable ores, the disadvantage of a lower technical education here, neglect to study chemistry, &c., would give the pick of the trade to our rivals. But, as a matter of fact, the steel trade of Great Britain has marvellously developed and gone beyond its rivals, the production of steel ingots equalling now, according to statistics just made public, no less than 750,000 tons per annum, whilst that of the

	Tons per Annum.		Tons per Annum.
United States	525,996	Belgium	71,758
France	261,874	Sweden	22,789
Germany	242,261	Russia.....	8,500

“ ‘The carrying out of railway works in British possessions gives continued promise of demand, which will be increased, as new outlets for both steel and iron are thereby opened out. Canals and irrigation works will contribute their quota, and the deficiency of water supply in foreign cities, and even in such cities as London, Liverpool, and Manchester, is likely to provide a large amount of work for special branches of trade.’

“ ‘With an extract from a paper in the *Economist* (5th January, 1878), in which was carefully considered the course of prices in 1877, we introduce our usual final table of comparative prices at four leading periods.

“ ‘Week by week, during the last five months of 1877, there has been so general a decline in prices that it is scarcely needful to particularise. We have already mentioned the rise in raw cotton; wool has been steadily, if somewhat artificially, maintained; saltpetre has dropped only to rise again. Iron, coals, and copper are, however, all down, tin showing exceptional steadiness. The group of articles of food shows a general decline; a fall of 14s. per quarter in the average price of wheat, and that during a war in Europe and a bad harvest at home, being one of the most remarkable features which have ever signalled the trade. It will also be noticed that the price of beef has fallen since the summer, and the decline in coffee, together with the falling off in the excise returns, remind us that the labouring mass of the population has now less than of late to spend upon necessities and comforts of life.’

“ ‘Any account of the commercial events in 1877 would be incomplete which did not advert to the active public discussion which has been carried on for some months by a party who have taken alarm at what they conceive to be strong evidence pointing to a consumption of our capital in the form of excessive imports. The imports and exports of the United Kingdom 1871-77 have been in million pounds :—

Years.	Imports.	Exports.	Excess, Imports.
1871.....	331	284	47
'72.....	355	315	40
'73.....	371	311	60
'74.....	370	298	72
'75.....	373	282	91
'76.....	375	257	118

"The subject was carefully discussed in the *Economist* of November and December, 1877, arising out of an elaborate letter by Mr. Rathbone, of Liverpool, who adopted the unfavourable view. Before any positive conclusion in figures can be arrived at, it would be necessary to ascertain three things, which, in reality, are not to be ascertained statistically, viz.:—

"1. The amount of the investments of British capital abroad, and the annual interest on it to be provided for, of course, only by imports into this country.

"2. The extent to which British capital is employed abroad, in colonial and foreign countries, in advances, credits, and commitments of various kinds in businesses and adventures, carried on there by relations, correspondents, and the like.

"3. The extent to which year by year fortunes or profits realised abroad are removed to this country to be employed in home outlay and investments. This is a very large item indeed. Fifty years ago it was generally estimated that the private fortunes then annually remitted home from India were not less than 6 millions sterling; and if 6 millions then, how much are they now ?

The Money Markets in 1877.

"The *Railway News* gives the following clear report on the changes in the money market in 1877 :—

"The rates for money have been unusually low throughout the greater part of 1877—a circumstance readily explained by the fact that much smaller amounts have been required for the trade of the country. Ordinary trade bills, which furnish employment for so large a portion of the loanable capital of the country, have been scarce, and the complaint has been general, during nearly the whole of the past twelve months, that there has been no "demand for money." Not only have the ordinary requirements of trade been restricted, but speculation, far less active than was the case a few years since, has not afforded the means for the employment of any large amount of capital. Foreign loans, which have on former occasions absorbed large sums, took from us last year only very insignificant amounts of surplus capital.

"The changes in the Bank of England rate of discount were—with the exception of 1876—fewer in number than has been the case for some years past. There were seven movements in the official minimum during the course of 1877, ranging between 2 and 5 per cent. ; against five changes in 1876, between the same extremes ; against twelve changes in 1875 ; and no less than twenty-four changes in the inflated year 1873. The average bank rate for the year has been $2\frac{1}{2}$ per cent., as compared with $2\frac{1}{2}$ per cent. in 1876 ; with $3\frac{1}{2}$ per cent. in 1875 ; with $3\frac{1}{2}$ per cent. in 1874 ; and with nearly 5 per cent. in 1873.

The position of the leading foreign banks, as shown in the following usual Table :—

Leading Foreign Banks, 1873-77. Notes in Circulation and Bullion Reserve, being Summary of Appendix (passim) in Million £.

[00,000's omitted, thus 111,5 = 111,500,000£.]

Dates.	Bank of France.		Imperial Bank of Germany.		Bank of Austria.		Bank of Belgium.	
	Notes.	Bullion.	Notes.	Bullion.	Notes.	Bullion.	Notes.	Bullion.
1873.	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £
1st January.....	111,5	31,7	45,5	27,6	32,5	14,2	11,7	4,7
1st July	115,7	31,0	42,7	35,4	35,5	14,4	14,1	5,6
1874.								
1st January.....	115,8	30,6	44,6	35,2	36,0	14,4	12,6	4,2
1st July	100,9	47,8	42,1	35,5	30,2	14,2	11,8	3,9
1875.								
1st January.....	105,9	52,8	41,9	30,3	30,1	13,9	13,1	4,7
1st July	96,9	62,7	43,3	29,8	29,1	13,8	12,9	4,9
1876.								
1st January	100,4	67,4	35,7	22,2	28,8	13,6	13,5	4,8
1st July	99,2	88,0	38,2	27,1	27,4	—	13,1	5,5
1877.								
1st January.....	107,5	86,4	37,9	25,1	29,6	—	14,5	4,6
1st March	106,5	88,8	33,4	27,4	28,0	—	13,7	5,1
1st July	100,1	90,1	37,1	27,5	27,4	—	—	4,2
1st October.....	98,6	87,7	36,3	23,1	30,0	—	13,0	3,8
1st November.....	100,7	85,9	34,1	23,3	30,7	—	13,1	4,0
1st December.....	100,0	83,5	32,3	24,2	28,8	—	13,0	4,1

Note.—In *France*, through 1873, the market price of gold was 2 to 9½, average 7½ per mille prem. In 1874, bank notes were at *par*; in 1875, the same; in 1876, also the same; in 1877 specie payment was resumed.

In *Austria*, in 1873, the premium on gold was 8 per cent.; in 1874 it was 5½ per cent.; in 1875 it was 3½ per cent.; in 1876 it was 4½; and in 1877 it was 5 per cent.

In *Italy*, in 1873, the premium on gold was 9 to 15 per cent.; in 1874 it was 11½ per cent.; in 1875 it was 8 per cent.; and in 1876 it was 9 per cent.; and in 1877 the same.

In *Russia*, in 1873, the price of silver was 12 per cent.; in 1874, it was 13 per cent.; in 1875, it was 15 per cent.; in 1876 it was 20 per cent.; and in 1877 it was 39 per cent.

The next table gives the usual figures of the European rates of discount :—

European Rates of Discount, 1877-73. Average Annual Rates per Cent. per Annum, at Places as under for First-class Bills, being Abstract of Appendix (G).

Places.	1877.		1876.		1875.		1874.		1873.	
	Principal Bank.	Open Market.	Principal Bank.	Open Market.	Principal Bank.	Open Market.	Principal Bank.	Open Market.	Principal Bank.	Open Market.
London	Pr. cnt. 2½	Per cnt. 2½	Pr. cnt. 2½	Per cnt. 2½	Pr. cnt. 3½	Per cnt. 3	Pr. cnt. 3½	Per cnt. 3½	Pr. cnt. 4	Per cnt. 4½
Paris	2½	1½	3½	2½	4	3½	4½	4	5½	5
Frankfort ..	4½	3½	5	3½	4½	3½	3½	3½	4½	4½
Amsterdam ..	3	2½	3	2½	4½	3½	3½	3½	4½	4½
Hamburg	4½	3½	—	3½	—	3½	—	3½	—	4½
Brussels	2½	2½	2½	2½	4½	3½	4½	4½	5	4½
Berlin	4½	3½	3½	3½	4½	3½	4½	3½	5	4½
Vienna.....	4½	4½	4½	4½	4½	4½	4½	4½	5½	5½
Petersburg ..	6	6½	6½	7	5½	5½	6	5½	6½	6½
Turin	—	—	—	—	—	—	—	—	—	—
Madrid	—	—	—	—	—	—	—	—	—	—

Financial Issues in 1877 and in 1874-77.

Herapath's Journal gives as follows. We omit, on grounds of space, the detailed figures for 1873-72:—

[0000s omitted, thus 140,05 = 140,050,000£, and 85 = 850,000£.]

Countries.	Loans of States and Towns.	Financial and Credit Companies' Issues.	Railway and Industrial Companies' Capital.	Comparative Totals.			
				1877.	1876.	1875.	1874.
	£	£	£	£	£	£	£
America (all)	140,05	—	85	140,90	62,65	8,85	39,68
Asia.....	1,60	—	—	1,60	27	—	—
Austro-Hungary ..	8,00	—	—	8,00	4,02	6,09	10,53
Belgium	17	—	14	31	96	1,18	7,93
Danubian } Principality }	—	—	—	—	1,03	89	68
Denmark	—	—	—	—	8	—	—
France	6,43	11,30	57,33	75,06	19,63	3,25	9,12
Germany.....	6,19	15	1,98	8,32	17,45	17,31	11,85
Great Britain } and Colonies }	7,64	—	4,24	11,88	13,65	13,32	38,77
Holland and } Colonies }	83	—	1,15	1,98	1,30	1,76	4,49
Italy	3,87	55	18	4,60	1,86	5,38	2,35
Portugal	6,50	—	—	6,50	30	—	6
Russia	43,60	1,60	4	45,24	16,36	3,68	10,93
Spain	—	2,80	2,25	5,05	1,67	1,09	—
Switzerland	60	11	69	1,40	3,47	3,12	12,61
Turkey and } Egypt	5,00	—	—	5,00	—	1,10	17,41
Total, 1877....	230,48	16,51	68,85	316,24	145,70	67,02	166,41
„ '76....	117,82	3,32	24,94	146,09			
Increase in 1877	112,66	13,19	43,91	170,15			

"The largeness of the total for 1877 will at once be noticed. Its increase over 1876 is actually larger than the total for that year. It will also be seen at once that the three great borrowers, beside whom all the others sink into insignificance, are America, France and Russia. In the case of America, the major part of the aggregate of 141,000,000*l.* is represented, as has been the case for some years back, by the process of conversion really effected by the issue of the 4 per cent. United States stock. With regard to France, out of the total of 75,000,000*l.* some 57,000,000*l.* were raised for railway and industrial purposes. On the other hand, nearly the whole of the Russian amount of 45,000,000*l.* is represented—a good deal of it existing on paper only—by war loans. It is curious to note the three different reasons which have brought about the borrowing of each of these States. America has borrowed to reduce her charges; France, for industrial purposes, presumably self-supporting; and Russia, to obtain the wherewith to wage her fight with Turkey. Under slightly different appellations, these are just the reasons which usually influence a private individual in borrowing; which of them is the best, the most legitimate, we can safely leave our readers to determine.

"The following is our usual abstract of the larger table (in mln. pounds):—

Particulars.	1877.	1876.	1875.	1874.	Totals, 6 Years, 1872-77.	1871.	Totals, 7 Years, 1871-77.
States, &c.	231	117½	18½	63½	823½	468	1,291½
Financial.....	16	3½	17½	12	197	} 160	977½
Industrial	69½	25	31½	93	620½		
Totals	316½	146	68	168½	1,640½	628	2,268½
Add total for 1870.....							228½
Grand total for eight years, 1870-77, both inclusive.....							2,497½
Average per year							312

"So that during the last eight years the enormous sum of little less than 2,500 millions of pounds sterling has apparently been raised as new capital for various purposes throughout the world.

"One of the chief difficulties of 1877 has been the prevalence of strikes in nearly all the great trades. Mr. G. Phillip Bevan, who writes with authority on these subjects, sent to the "Times" (4th January, 1878), a statistical abstract of the number of strikes in 1877, amounting to a total of 121, made up of 70 strikes in the building trades, 21 in coal mining, 23 in iron, 22 in wire and stove work, 18 in textiles, and the remainder in 9 other trades.

"During the last five years, from 1873 to 1877, the various branches of wholesale commerce show the following proportion of failures:—

Failures in United Kingdom.	1873.	1874.	1875.	1876.	1877.
Agents, commission, yarn, &c.	177	138	75	192	227
Bankers, joint stock banks, foreign bankers	5	5	3	2	—
Boots and shoes.....	112	91	80	116	103
Brewers	18	17	21	23	31
Cigars and tobacco	13	4	8	12	12
Cement, asphalte	1	6	—	6	5
Coals	28	65	97	147	135
Contractors.....	20	37	16	44	73
Corn merchants, millers	54	72	63	62	75
Cotton and colonial brokers.....	21	8	20	15	9
Cotton spinners and manufacturers	44	20	31	42	55
Curriers, tanners, leather merchants	27	33	30	48	32
Discount and bill brokers.....	5	—	3	4	—
Druggists, wholesale and manufacturing } chemists	17	19	25	20	29
Drysalts, oil, colour.....	62	53	39	44	92
Dyers, bleachers, finishers.....	27	27	28	28	20
Electro-platers	4	6	5	6	18
Engineer, founders, iron, metal, hardware } manufacturers and merchants	179	223	235	243	280
Financial agents.....	6	12	3	12	7
Glass, lead, and earthenware	17	20	13	23	21
Gunpowder	—	—	—	—	—
Hats, caps, straw hats	17	23	12	23	21
Hops	4	2	2	5	8
Wholesale jewellers	24	25	31	55	29
Manufacturers of woollens, worsted, elastic, } silks, hosiery, stuffs, &c.	180	194	192	151	190
Merchants	228	208	247	216	205
Provisions	38	37	59	58	50
Rope, sails	16	15	16	21	26
Shipbrokers and owners	31	39	49	42	36
Shipbuilders	8	12	3	10	11
Stationers, wholesale, and paper manufac- } turers	20	35	15	37	40
Sugar refiners.....	1	—	—	—	1
Tea, coffee, groceries.....	26	26	13	23	17
Timber	27	27	41	47	57
Warehousemen, importers of foreign } goods, &c.	129	117	110	136	120
Wines, spirits.....	106	87	121	128	109
Woolstaplers	13	23	8	15	4
Woollen and cotton wastes	40	25	12	33	32
	1,745	1,751	1,736	2,089	2,150

The following is the closing table, in the usual form:—

Wholesale Prices in London. Comparison of 1st January, 1878, with Four Former Dates, stating in Approximate Percentages the Degree in which the Prices at 1st January, 1878, were Higher or Lower than the Prices brought into the Comparison, see Appendix (C).

Articles.	Higher	Lower	Higher	Lower	Higher	Lower	Higher	Lower
	Than 1st January, 1877.	Than 1st January, 1876.	Than 1st January, 1875.	Than 1st January, 1870.	Than 1st January, 1870.	Than 1st January, 1870.	Than 1st Jan., 1867.	Than 1st Jan., 1867.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Coffee	2	—	6	—	36	—	22	—
Sugar	—	4	25	—	2	—	29	—
Tea	—	4	11	—	9	—	3	—
Wheat.....	1	—	23	—	23	—	—	13
Butchers' meat	—	2	—	1	10	—	11	—
Indigo.....	—	2	4	—	12	—	16	—
Oils	—	3	—	1	—	13	—	21
Timber	3	—	—	—	33	—	39	—
Tallow.....	—	12	—	18	—	15	—	16
Leather	4	—	—	2	17	—	17	—
Copper	—	13	—	23	—	2	—	17
Iron.....	—	12	—	34	8	—	3	—
Lead.....	—	13	—	20	—	—	—	5
Tin.....	—	10	—	28	—	38	—	14
Cotton.....	—	1	—	16	—	46	—	59
Flax and hemp	—	7	—	3	—	20	—	20
Silk.....	—	23	24	—	—	18	—	22
Wool.....	—	13	—	16	27	—	—	15
Tobacco	—	10	—	26	13	—	—	5
Cotton cloth	—	10	—	13	—	17	—	43
Bank Note circ- ulation of Great Britain	—	5	—	—	13	—	15	—

Note.—This table is deduced from the details given in Appendix (A), and is read thus:—The prices of 1st January, 1878, were, as regards coffee, 2 per cent. higher than the prices of 1st of January, 1877; 6 per cent. higher than at 1st January, 1876; 36 per cent. higher than at 1st January, 1870; and 22 per cent. higher than at 1st January, 1867. In some cases it is impossible to arrive satisfactorily at these percentages in consequence of the wideness of the quotations given in the prices current, and also in consequence of changes in classifying the qualities of the articles—changes necessarily incident to improvement of culture and manufacture.

These figures should be carefully studied. The present prices (1st January, 1878) are considerably lower as a rule than at the end of 1876; still lower as compared with the end of 1874; lower for most raw materials than at the end of 1870; and still lower than at the end of 1866, after the panic of May in that year. It is scarcely possible that prices can fall below the present level, and if that be a true inference, cost of production must have at length touched the point of decline at which the profit of extended operations becomes almost certain.

Appended is the Table of "Contents" of the "Commercial History and Review of 1877," from which the foregoing extracts are taken :—

- Year 1877.—General Results of its Commercial and Financial History.
- I.—Corn and Cattle Trades.
 - II.—Colonial and Tropical Produce.
 - III.—Wine Trade.
 - IV.—Raw Materials.
 - V.—Shipping and Freights.
 - VI.—Cotton Trade.
 - VII.—West Riding, &c., Woollen, Worsted, Flax, Iron, and other Trades.
 - VIII.—Railway Markets and Dividends.
 - IX.—The Money Markets in 1877.

APPENDIX.

- A.—Wholesale Prices of Commodities in London and Manchester—Average of Six Years, 1845-50 ;—Selected Dates, 1865-76 ;—and Monthly, 1877.
- B.—Prices of Grain—England and Wales—Calendar Year.
- C.—Foreign Exchanges, 1841-77.
- D.—Wholesale Prices, 1845-77.—Proportionate Results.
- E.—Bank of England—Weekly Return.
- F.—Bank of France.
- G.—European Rates of Discount per Cent. per Annum, 1877.
- H.—Banks of Germany, Belgium, and Austria.
- I.—The London Discount Companies.
- J.—Joint Stock Banks in London—Group (A)—Entirely Metropolitan.
- K.—United Kingdom—Bills of Exchange and Promissory Notes Created and in Circulation at One Time—1866-76.
- L.—The Production and Distribution of Gold and Silver, 1866-76.
- M.—The Minimum Rates of Discount Advertised by the Bank of England During the Last Twenty Years—1857-76—and the Inferences Therefrom as Regards the Future.
- N.—The Result of Limited Companies in Sheffield, 1863-77.
- O.—American Railways in Liquidation in 1877.

II.—*Lloyd's Statistics of Marine Casualties for the Year 1877.*

We give, as usual, a few words of introduction to, and a short digest of the annual tables of marine losses and casualties, furnished by the Committee of Lloyd's as reported to that corporation during the past year, comparing the several years from 1872 inclusive, the first year for which the tables appeared in our *Journal*, with the average of the six years 1872-77 inclusive, and with the average of

the eleven years from 1866 to 1876 inclusive, during which the tables have been in existence.

We have before remarked that the reports relating to *lives*, whether as *lost* or *saved*, are by no means so complete as could be desired; the figures for the six years, with comparisons, are as under:—

Lives Lost so far as Reported.

	1872.	1873.	1874.	1875.	1876.	1877.	Six Years, 1872-77 inclusive.		Eleven Years, 1866-76 inclusive.	
							Average.	Per- centage on Annual Total.	Average.	Per- centage on Annual Total.
First quarter	280	467	413	262	377	394	365	21'73	374	21'95
Second "	370	699	500	558	499	241	478	28'45	499	29'28
Third "	232	164	219	285	869	430	282	16'79	258	15'14
Fourth "	648	645	352	729	434	520	555	33'03	578	33'63
Annual total	1,530	1,975	1,484	1,829	1,679	1,585	1,680	100'00	1,704	100'00

Crews are frequently reported as *saved* or *drowned* without the number of men being given.

So far as intelligence has been received, the figures appear as follow:—

Crews Reported Saved.

	1872.	1873.	1874.	1875.	1876.	1877.	Six Years, 1872-77 inclusive.		Eleven Years, 1866-76 inclusive.	
							Average.	Per- centage on Annual Total.	Average.	Per- centage on Annual Total.
<i>Sg. Vessels—</i>										
First qtr.	280	378	247	258	251	324	289	28'27	270	28'65
Second "	204	144	190	160	185	193	179	17'52	158	16'78
Third "	156	172	140	149	151	142	151	14'78	159	16'88
Fourth "	558	312	398	400	384	365	403	39'43	355	37'69
Annual total	1,198	1,006	975	967	971	1,024	1,022	100'00	942	100'00
<i>Steamers—</i>										
First qtr.	21	26	26	31	16	19	23	26'13	18	29'03
Second "	25	9	20	14	13	19	17	19'32	12	19'35
Third "	21	18	19	21	21	21	20	22'73	13	20'97
Fourth "	33	18	30	26	30	32	28	31'82	19	30'65
Annual total	100	71	95	92	80	91	88	100'00	62	100'00

[illegible]

Sailing vessels in collision numbered 2,164, being 295 over the average of eleven years, equal to an increase of 15·78 per cent.; while *steamers in collision* gave 755 vessels, being 183 above the average of eleven years or 31·91 per cent. of increase.

The results of the various casualties reported, so far as ascertained, give the following proportions, which when compared with the average settlements made upon an underwriting account are of considerable interest:—

	Results—Percentage on Annual Total.							
	1872.	1873.	1874.	1875.	1876.	1877.	Mean of 6 Years, 1873-77 inclusive.	Mean of 11 Years, 1866-76, inclusive.
<i>Sailing Vessels—</i>								
Total or constructive loss or great damage	28·09	30·99	29·59	26·43	28·09	28·20	28·56	31·87
Minor damage.....	53·15	50·15	51·68	52·22	45·47	49·70	50·40	46·22
Not damaged or results unknown	18·76	18·86	18·73	21·35	26·44	22·10	21·04	21·91
	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
<i>Steamers—</i>								
Total or constructive loss or great damage	14·08	15·28	16·26	12·02	13·65	12·85	14·02	16·43
Minor damage.....	50·14	47·64	48·99	48·85	44·88	47·53	48·04	42·27
Not damaged or results unknown	35·78	37·08	34·75	39·13	41·47	39·62	37·94	41·30
	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00

Missing vessels, or vessels which are believed to have perished with all hands, happily continue below the average, the numbers being as follow:—

Missing Vessels.	1872.	1873.	1874.	1875.	1876.	1877.	Average of Six Years, 1872-77 inclusive.	Average of Eleven Years, 1866-76 inclusive.
<i>Sailing vessels</i>	80	148	111	71	58	69	90	89
<i>Steamers</i>	9	16	17	11	4	11	11	8
Total	89	164	128	82	62	80	101	97

Considerable interest has been manifested in reference to the fifth annual conference in connection with the *Association for the*

Reform and Codification of the Law of Nations, held at Antwerp in August, 1877, particularly as to the possibility or otherwise of an international basis for the adjustment of General Average, and a number of propositions known as the *York-Antwerp* rules were then adopted, and have since been accepted by a meeting of shipowners, gentlemen from various British ports, and others, held recently in London, but at which it appears the Committee of Lloyd's and the Metropolitan Marine Insurance Companies declined to be Represented, as these bodies consider it undesirable to extend the operation of general average beyond the limit known to our English law, namely, *Physical Safety*, while those who support the proposed new rules, urge that *Common Benefit* should also be taken as the basis of contribution.

Many persons are of opinion that these rules would gradually lead to an assimilation of practice between continental nations and our own, which would be of great value, while a large number consider that the proposed extension of general contribution would be an evil, and must fail in obtaining uniformity in adjustment.

Amidst this divergence of view it may be of interest to indicate that, possibly, the proportion of casualties which would be classed as general averages, either from being on fire, jettison of cargo under deck, cutting away sails, masts, or spars, or slipping from anchors and chains, may be roughly taken at about 8 per cent., but as the "cutting away," "slipping" and other special casualties are not distinguished in the tables, the proportion can only be crudely estimated.

The vessels reported *burnt or on fire* were as under :—

Burnt or on Fire.	1872.	1873.	1874.	1875.	1876.	1877.	Average of Six Years, 1872-77 inclusive.	Average of Eleven Years, 1866-76 inclusive.
Sailing vessels	122	153	171	124	132	102	134	147
Steamers	59	56	57	58	65	56	59	47
Total	181	209	228	182	197	158	193	194

The *Repertoire Général* of the Bureau Veritas gives the number of mercantile sea-going *sailing vessels* in 1877 as 51,912, measuring 14,799,130 tons, a decrease in number from 1876 of 10.99 per cent.; and *steamers* as 5,471, measuring 5,507,699 tons *gross*, or 3,595,185 tons *net*, a decrease in number from 1876 of 5.19 per cent.

The proportion of casualties reported to Lloyd's to the number of mercantile sea-going vessels existing in the different years appears as under :—

	Percentage of Reported Casualties to Sea-going Vessels Existing.						
	1872.	1873.	1874.	1875.	1876.	1877.	Mean of Six Years, 1872-77 inclusive.
Sailing vessels....	20·51	19·77	19·73	18·81	18·45	21·74	19·86
Steamers	55·32	47·55	46·97	46·12	44·98	46·06	47·83

Note.—By some unexplained circumstance *errata* occurred in the proportions given for 1876. See *Journal*, June, 1877, they should have been as above.

A table recently issued by Lloyd's Register of Shipping, shows that notwithstanding the universal depression in commerce, no less than 653 new sailing and steam vessels, of an aggregate tonnage of 521,523 tons, had been classed by that society during the year 1877.

Every additional opportunity afforded for comparison, with its recurring comparative constancy of proportion, strengthens the hypothesis that if, by the formation of an Institute of British Underwriters, or through some recognised channel of information, combined experience properly tabulated, and spreading over a sufficiently wide area of operations, were regularly brought under review, marine insurance might be placed upon a much more advantageous basis than it at present occupies, while the necessity for more scientific treatment becomes, it would seem, all the greater as competition continually intensifies, and, when carried to excess, must be a source of considerable danger to all concerned in a business involving, as at present, so large an element of uncertainty.

The advantages of an Institute of British Underwriters would be by no means confined to statistical inquiry, but such a body would afford the opportunity for discussing calmly and intelligently many most important and practical questions bearing upon the whole subject of Marine Insurance, Average adjustments, and the intimate and oftentimes intricate and delicate relations subsisting between shipowners, merchants and underwriters, and we sincerely trust the time is approaching when so desirable an addition will be made to the important Institutes already existing in connection with most of the leading branches of our commerce and professions.

1.—A Table showing the Number of Wrecks and Casualties to Sailing Vessels and Steamers Compared with the Average Number and

Sailing Vessels.	First Half-Year.				Second Half-Year.				Annual Total.			
	1877.		Average 11 previous Years.		1877.		Average 11 previous Years.		1877.		Average 11 previous Years.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
1. <i>Missing</i>	57	1'04	58	1'19	12	0'21	31	0'52	69	0'61	89	0'82
2. <i>Abandoned—</i>												
Recovered	28	0'51	32	0'66	37	0'64	39	0'66	65	0'58	71	0'66
Lost	124	2'27	118	2'41	109	1'87	134	2'26	233	2'06	252	2'33
Total	152	2'78	150	3'07	146	2'51	173	2'92	298	2'64	323	2'99
3. <i>Collision—</i>												
Not damaged	228	4'16	227	4'63	308	5'30	296	5'00	536	4'75	523	4'84
Damaged	688	12'57	550	11'25	789	13'58	643	10'85	1,477	13'08	1,193	11'03
Sunk	70	1'28	73	1'48	81	1'39	80	1'35	151	1'34	153	1'41
Total	986	18'01	850	17'36	1,178	20'27	1,019	17'20	2,164	19'17	1,869	17'28
4. <i>Sinking from</i>												
<i>causes other than</i>												
<i>collision</i> }	148	2'70	152	3'11	119	2'05	179	3'02	267	2'37	332	3'06
5. <i>Stranded—</i>												
Got off	748	13'66	706	14'42	815	14'02	776	13'10	1,563	13'85	1,482	13'70
Not got off	466	8'51	490	10'01	440	7'57	665	11'23	906	8'03	1,155	10'67
Subsequent fate } not reported	106	1'94	122	2'49	126	2'17	171	2'89	232	2'05	293	2'71
Total	1,320	24'11	1,318	26'92	1,381	23'76	1,613	27'22	2,701	23'93	2,931	27'08
6. <i>Capture</i>	—	—	4	0'08	9	0'15	9	0'15	9	0'08	13	0'12
7. <i>Piracy</i>	—	—	2	0'03	—	—	2	0'04	—	—	4	0'03
8. <i>Burnt or on fire</i>	52	0'95	67	1'37	50	0'86	80	1'35	102	0'90	147	1'36
9. <i>Dismasted or disabled</i>	283	5'17	188	3'84	236	4'06	290	4'89	519	4'60	478	4'41
10. <i>Jettison of cargo under deck</i>	94	1'72	92	1'88	69	1'19	91	1'53	163	1'44	183	1'69
11. <i>Jettison of deck-load or washed overboard</i>	53	0'97	55	1'12	189	3'25	118	1'99	242	2'14	173	1'60
12. <i>Leaky</i>	541	9'88	515	10'53	584	10'05	666	11'24	1,125	9'97	1,181	10'92
13. <i>Loss of anchors or chains</i>	295	5'39	238	4'86	333	5'73	270	4'56	628	5'56	508	4'69
14. <i>Machinery damaged, &c.</i>	—	—	—	—	—	—	—	—	—	—	—	—
15. <i>Mutiny, sickness, casualty to crew, or refusing duty</i>	104	1'90	122	2'50	112	1'93	120	2'02	216	1'91	242	2'24
16. <i>Ship damaged, &c.</i>	1,379	25'18	1,073	21'93	1,369	23'55	1,246	21'03	2,748	24'35	2,319	21'44
17. <i>Water-logged</i>	11	0'20	10	0'21	25	0'43	19	0'32	36	0'32	29	0'27
Number of casualties.	5,475	—	4,896	—	5,812	—	5,924	—	11,287	—	10,820	—
Number of vessels	5,127	—	4,549	—	5,406	—	5,540	—	10,533	—	10,089	—

reported in "*Lloyd's List*," during the Year 1877, and the respective Percentages thereon Percentages for the Eleven Previous Years.

First Half-Year.				Second Half-Year.				Annual Total.				Steamers.
1877.		Average 11 previous Years.		1877.		Average 11 previous Years.		1877.		Average 11 previous Years.		
Num- ber.	Per Cent.	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Num- ber.	Per Cent.	
8	0'67	6	0'69	3	0'23	3	0'26	11	0'44	8	0'46	
1	0'08	1	0'09	—	—	—	—	1	0'04	1	0'06	
2	0'17	2	0'25	4	0'30	2	0'17	6	0'24	4	0'20	
3	0'25	3	0'34	4	0'30	2	0'21	7	0'28	5	0'26	
103	16'26	128	15'23	216	16'20	177	17'75	409	16'23	305	16'60	
148	12'47	106	12'51	179	13'43	186	13'61	327	12'98	241	13'10	
7	0'59	11	1'27	12	0'90	15	1'51	19	0'75	26	1'40	
348	29'32	244	29'01	407	30'53	328	32'87	755	29'96	572	31'10	
14	1'18	20	2'33	21	1'58	24	2'41	35	1'39	44	2'38	
259	21'82	176	20'89	260	19'50	201	20'12	519	20'59	377	20'47	
33	2'78	33	3'91	51	3'83	44	4'46	84	3'33	77	4'21	
5	0'42	11	1'36	11	0'83	9	0'96	16	0'64	21	1'14	
297	25'02	220	26'16	322	24'16	255	25'54	619	24'56	475	25'82	
—	—	—	—	—	—	1	0'09	—	—	1	0'07	
28	2'36	22	2'65	28	2'10	24	2'46	56	2'22	47	2'55	
9	0'76	7	0'87	11	0'83	11	1'14	20	0'79	19	1'02	
28	2'36	13	1'61	21	1'58	13	1'29	49	1'94	26	1'44	
8	0'67	6	0'70	17	1'27	10	0'97	25	0'99	16	0'85	
25	2'11	23	2'76	28	2'10	24	2'38	53	2'10	47	2'55	
20	1'68	10	1'16	23	1'72	9	0'90	43	1'71	19	1'02	
217	18'28	169	20'07	229	17'18	187	18'79	446	17'70	357	19'38	
11	0'93	10	1'16	9	0'67	10	1'01	20	0'79	20	1'08	
171	14'41	88	10'41	210	15'75	96	9'66	381	15'12	184	10'00	
1,187	—	842	—	1,333	—	998	—	2,520	—	1,840	—	
1,130	—	810	—	1,263	—	967	—	2,413	—	1,777	—	
1. Missing												
2. Abandoned— Recovered Lost												
Total												
3. Collision— Not damaged Damaged Sunk												
Total												
4. Sinking from causes other than colli- sion												
5. Stranded— Got off Not got off Subsequent fate not reported												
Total												
6. Capture												
7. Piracy												
8. Burnt or on fire												
9. Dismasted or disabled												
10. Jettison of cargo under deck												
11. Jettison of deckload or washed over- board												
12. Leaky												
13. Loss of anchors or chains												
14. Machinery damaged or short of coals												
15. Mutiny, sickness, casualty to crew, or refusing duty												
16. Ship dmgd., &c.												
17. Water-logged												
Number of casualties												
Number of steamers												

2.—A Table showing the Results of Wrecks and Casualties to Ship and to Cargo, with Salvage during the Year 1877, and the respective Percentages thereon, Compared

Sailing Vessels.	First Half-Year.				Second Half-Year.				Annual Total.			
	1877.		Average 11 previous Years.		1877.		Average 11 previous Years.		1877.		Average Eleven previous Years.	
	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Number.	Per Cent.	Num- ber.	Per Cent.
<i>Results to Ship—</i>												
Total loss	813	15'86	856	18'82	751	13'88	1,078	19'37	1,564	14'85	1,929	19'12
Constructive loss	84	1'64	88	1'95	44	0'82	83	1'49	128	1'22	171	1'70
Great damage.....	745	14'53	473	10'40	533	9'86	641	11'58	1,278	12'13	1,115	11'05
Minor damage	2,471	48'19	2,146	47'17	2,764	51'13	2,517	45'43	5,235	49'70	4,663	46'22
Raised aftersink- ing.....	42	0'82	20	0'43	27	0'50	17	0'31	69	0'65	37	0'36
Not damaged or results un- known	972	18'96	966	21'23	1,287	23'81	1,209	21'82	2,259	21'45	2,175	21'55
Total	5,127	—	4,549	—	5,406	—	5,540	—	10,533	—	10,089	—
<i>Results to Cargo so far as reported—</i>												
All lost	382	7'45	490	10'78	336	6'22	527	9'51	718	6'82	1,017	10'08
Part lost	214	4'17	243	5'35	337	6'23	298	5'38	551	5'23	542	5'37
All saved.....	16	0'31	19	0'41	14	0'26	14	0'25	30	0'28	33	0'32
Forwarded	19	0'37	12	0'27	7	0'13	8	0'14	26	0'25	20	0'20
Heated	11	0'21	10	0'21	9	0'16	8	0'15	20	0'19	19	0'18
Shifted	60	1'17	61	1'35	73	1'35	69	1'26	133	1'26	131	1'30
Otherwise damaged	96	1'87	69	1'53	90	1'66	69	1'24	186	1'76	138	1'37
Salvage Services	478	9'32	437	9'61	564	10'43	484	8'73	1,072	10'18	921	9'13
<i>Lives—</i>												
Crews saved	517	10'08	428	9'41	507	9'38	514	9'28	1,024	9'72	942	9'34
Crews drowned	86	1'68	47	1'03	33	0'61	45	0'82	119	1'13	93	0'92
Lives lost so far as reported (in both ships and steamers)	635	—	873	—	950	—	831	—	1,585	—	1,704	—

Services, Crews Saved or Drowned and Lives Lost, so far as reported in "Lloyd's List," with the Average Number and Percentages for the Eleven Previous Years.

First Half-Year.				Second Half-Year.				Annual Total.				Steamers.
1877.		Average 11 previous Years.		1877.		Average 11 previous Years.		1877.		Average 11 previous Years.		
Num-ber.	Per Cent.	Num-ber.	Per Cent.	Num-ber.	Per Cent.	Num-ber.	Per Cent.	Num-ber.	Per Cent.	Num-ber.	Per Cent.	
62	5'49	66	8'17	85	6'62	83	8'59	147	6'09	149	8'40	Results to Ship—
2	0'18	5	0'62	3	0'23	4	0'40	5	0'21	9	0'49	Total loss
68	6'02	59	7'29	90	7'02	75	7'75	158	6'55	134	7'54	Constructive loss
536	47'43	353	43'56	611	47'62	398	41'18	1,147	47'53	751	42'27	Great damage
7	0'62	6	0'72	7	0'55	8	0'81	14	0'58	14	0'77	Minor damage
455	40'26	321	39'64	487	37'96	399	41'27	942	39'04	720	40'53	Raised after sinking
1,130	—	810	—	1,283	—	967	—	2,413	—	1,777	—	{ Not damaged or results unknown
												Total
20	1'77	26	3'28	35	2'73	30	3'11	55	2'28	57	3'19	Results to Cargo so far as reported—
53	4'69	33	4'11	62	4'83	39	4'03	115	4'77	72	4'07	All lost
2	0'18	1	0'18	—	—	1	0'11	2	0'08	3	0'14	Part lost
2	0'18	1	0'12	1	0'08	1	0'07	3	0'12	2	0'09	All saved
—	—	1	0'12	2	0'16	1	0'08	2	0'08	2	0'10	Forwarded
18	1'59	9	1'17	31	2'42	14	1'48	49	2'03	24	1'33	Heated
25	2'21	18	2'24	41	3'20	21	2'22	66	2'73	40	2'23	Shifted
104	9'20	63	7'73	97	7'56	68	7'02	201	8'33	130	7'29	Otherwise damaged
												Salvage Services
38	3'36	30	3'73	53	4'13	33	3'37	91	3'77	63	3'53	Lives—
13	1'15	4	0'52	4	0'31	2	0'23	17	0'70	6	0'35	Crews saved
—	—	—	—	—	—	—	—	—	—	—	—	Crews drowned
												{ Lives lost so far as reported (in both ships and steamers)

3.—A Table showing the Number of Wrecks and Casualties to Sailing Vessels reported Compared with the Average Number and Percentages

Sailing Vessels.	First Quarter.				Second Quarter.			
	1877.		Average Eleven previous Years.		1877.		Average Eleven previous Years.	
	Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.
1. <i>Missing</i>	30	0·85	26	0·83	27	1·38	32	1·81
2. <i>Abandoned—</i>								
Recovered	18	0·51	20	0·65	10	0·51	12	0·66
Lost	82	2·33	72	2·30	42	2·15	46	2·61
Total	100	2·84	92	2·95	52	2·66	58	3·27
3. <i>Collision—</i>								
Not damaged	140	3·98	137	4·38	88	4·50	90	5·07
Damaged	444	12·61	349	11·16	244	12·49	202	11·40
Sunk	47	1·33	43	1·37	23	1·18	30	1·69
Total	631	17·92	529	16·91	355	18·17	321	18·16
4. <i>Sinking from causes other than collision</i> }	102	2·90	84	2·70	46	2·36	68	3·85
5. <i>Stranded—</i>								
Got off	424	12·04	412	13·17	324	16·58	294	16·64
Not got off	270	7·67	315	10·07	196	10·03	175	9·89
Subsequent fate not reported	74	2·10	81	2·60	32	1·64	40	2·29
Total	768	21·81	808	25·84	552	28·25	510	28·82
6. <i>Capture</i>	—	—	2	0·06	—	—	2	0·11
7. <i>Piracy</i>	—	—	1	0·03	—	—	—	—
8. <i>Burnt or on fire</i>	33	0·94	36	1·16	19	0·97	31	1·76
9. <i>Dismasted or disabled</i> ...	172	4·88	111	3·54	111	5·68	77	4·35
10. <i>Jettison of cargo</i> }	57	1·62	61	1·95	37	1·88	31	1·77
under deck								
11. <i>Jettison of deckload or washed overboard</i> }	33	0·94	35	1·11	20	1·02	20	1·15
12. <i>Leaky</i>	336	9·54	326	10·43	205	10·49	190	10·72
13. <i>Loss of anchors or chains</i>	215	6·11	194	6·19	80	4·10	44	2·50
14. <i>Mutiny, sickness, casualty to crew or refusing duty</i>	69	1·96	74	2·38	35	1·79	48	2·70
15. <i>Ship damaged, loss of bulwarks, sails, &c.</i> }	968	27·49	742	23·75	411	21·04	331	18·71
16. <i>Water-logged</i>	7	0·20	5	0·17	4	0·21	5	0·27
Number of casualties	3,521	—	3,127	—	1,954	—	1,769	—
Number of vessels	3,283	—	2,877	—	1,844	—	1,672	—

in "*Lloyd's List*," during the Four Quarters of 1877, and the respective Percentages thereon, for the same period of the Eleven Previous Years.

Third Quarter.				Fourth Quarter.				Sailing Vessels.
1877.		Average Eleven previous Years.		1877.		Average Eleven previous Years.		
Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.	
6	0'36	16	0'83	6	0'15	14	0'37	1. <i>Missing</i>
18	0'77	12	0'59	24	0'58	27	0'69	2. <i>Abandoned—</i>
22	1'30	35	1'81	87	2'11	99	2'48	Recovered
35	2'07	47	2'40	111	2'69	126	3'17	Lost
								Total
100	5'92	114	5'84	208	5'04	182	4'60	3. <i>Collision—</i>
279	16'53	243	12'45	510	12'36	399	10'06	Not damaged
31	1'84	30	1'56	50	1'22	49	1'24	Damaged
410	24'29	388	19'85	768	18'62	631	15'90	Sunk
								Total
38	2'25	70	3'58	81	1'97	109	2'75	4. <i>Sinking from causes</i>
								other than collision
282	16'71	290	14'82	533	12'92	486	12'26	5. <i>Stranded—</i>
146	8'65	195	9'99	294	7'13	470	11'84	Got off
32	1'89	47	2'40	94	2'28	124	3'13	Not got off
460	27'25	532	27'21	921	22'33	1,080	27'23	Subsequent fate not re- ported
								Total
—	—	3	0'18	9	0'22	5	0'13	6. <i>Capture</i>
—	—	1	0'08	—	—	—	—	7. <i>Piracy</i>
21	1'24	34	1'77	29	0'70	45	1'14	8. <i>Burnt or on fire</i>
76	4'50	102	5'20	160	3'88	188	4'74	9. <i>Dismasted or disabled</i>
21	1'24	30	1'52	48	1'17	61	1'54	10. <i>Jettison of cargo</i>
31	1'84	20	1'06	158	3'83	97	2'45	under deck
167	9'89	253	12'96	417	10'11	412	10'39	11. <i>Jettison of deckload or</i>
34	2'02	48	2'45	299	7'25	222	5'59	washed overboard
41	2'43	49	2'51	71	1'72	70	1'77	12. <i>Leaky</i>
342	20'26	354	18'11	1,027	24'90	892	22'47	13. <i>Loss of anchors or</i>
6	0'36	6	0'29	19	0'46	13	0'33	chains
1,688	—	1,955	—	4,124	—	3,969	—	14. <i>Mutiny, sickness,</i>
1,631	—	1,858	—	3,775	—	3,682	—	casualty to crew or
								refusing duty
								15. <i>Ship damaged, loss of</i>
								bulwarks, sails, &c.
								16. <i>Water-logged</i>
								Number of casualties
								Number of vessels

4.—A Table showing the Number of Wrecks and Casualties to Steamers reported in Compared with the Average Number and Percentages

Steamers.	First Quarter.				Second Quarter.			
	1877.		Average Eleven previous Years.		1877.		Average Eleven previous Years.	
	Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.
1. <i>Missing</i>	7	1'01	4	0'85	1	0'20	2	0'48
2. <i>Abandoned—</i>								
Recovered	1	0'14	—	—	—	—	—	—
Lost	1	0'14	1	0'28	1	0'20	1	0'20
Total	2	0'28	2	0'36	1	0'20	1	0'30
3. <i>Collision—</i>								
Not damaged	120	17'39	71	14'71	73	14'69	57	15'94
Damaged	88	12'75	61	12'72	60	12'07	44	12'22
Sunk	5	0'73	6	1'32	2	0'40	4	1'21
Total	213	30'87	139	28'75	135	27'16	106	29'37
4. <i>Sinking from causes</i> } <i>other than collision</i> }	10	1'45	11	2'32	4	0'80	8	2'35
5. <i>Stranded—</i>								
Got off	137	19'85	93	19'33	122	24'55	83	22'98
Not got off	20	2'90	18	3'71	13	2'61	15	4'17
Subsequent fate not } reported	2	0'29	7	1'53	3	0'60	4	1'13
Total	159	23'04	118	24'57	138	27'76	102	28'28
6. <i>Capture</i>	—	—	—	—	—	—	—	—
7. <i>Piracy</i>	—	—	—	—	—	—	—	—
8. <i>Burnt or on fire</i>	12	1'74	11	2'22	16	3'22	12	3'23
9. <i>Dismasted or disabled</i>	6	0'87	5	0'98	3	0'60	3	0'73
10. <i>Jettison of cargo</i> } <i>under deck</i>	16	2'32	7	1'39	12	2'42	7	1'89
11. <i>Jettison of deckload or</i> } <i>washed overboard...</i> }	4	0'58	4	0'96	4	0'80	1	0'35
12. <i>Leaky</i>	13	1'88	12	2'60	12	2'42	11	2'98
13. <i>Loss of anchors or</i> } <i>chains</i>	13	1'88	7	1'53	7	1'41	2	0'68
14. <i>Machinery damaged</i> } <i>or short of coals</i>	119	17'25	93	19'24	98	19'72	76	21'18
15. <i>Mutiny, sickness,</i> } <i>casualty to crew, or</i> } <i>refusing duty</i>	5	0'73	6	1'18	6	1'21	4	1'13
16. <i>Ship damaged, loss of</i> } <i>sails, bulwarks, &c.</i> }	111	16'09	63	13'03	60	12'07	25	6'89
17. <i>Water-logged</i>	—	—	—	—	—	—	—	—
Number of casualties.....	690	—	482	—	497	—	360	—
Number of steamers	657	—	466	—	473	—	344	—

"*Lloyd's List*," during the Four Quarters of 1877, and the respective Percentages thereon for the same period of the Eleven Previous Years.

Third Quarter.				Fourth Quarter.				Steamers.
1877.		Average Eleven Previous Years.		1877.		Average Eleven Previous Years.		
Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.	
—	—	—	—	3	0·35	2	0·36	1. <i>Missing</i>
—	—	—	—	—	—	—	—	2. <i>Abandoned—</i> Recovered Lost
2	0·43	—	—	2	0·23	1	0·19	Total
2	0·43	—	—	2	0·23	1	0·25	3. <i>Collision—</i> Not damaged Damaged Sunk
86	18·30	75	19·31	130	15·06	102	16·75	Total
73	15·53	58	14·87	106	12·28	78	12·80	4. Sinking from causes other than collision
1	0·21	7	1·80	11	1·28	8	1·33	5. <i>Stranded—</i> Got off Not got off
160	34·04	140	35·98	247	28·62	188	30·88	Subsequent fate not reported
7	1·49	9	2·33	14	1·62	15	2·46	Total
111	23·62	81	20·87	149	17·27	119	19·63	6. Capture
20	4·25	17	4·27	31	3·59	28	4·59	7. Piracy
6	1·28	3	0·70	5	0·58	7	1·12	8. Burnt or on fire
137	29·15	101	25·84	185	21·44	154	25·34	9. Dismasted or disabled
—	—	—	—	—	—	1	0·13	10. Jettison of cargo under deck
—	—	—	—	—	—	—	—	11. Jettison of deckload or washed overboard
12	2·55	12	3·11	16	1·85	12	2·05	12. Leaky
3	0·64	3	0·77	8	0·93	8	1·37	13. Loss of anchors or chains
10	2·13	6	1·54	11	1·28	7	1·14	14. Machinery damaged or short of coals
1	0·21	1	0·35	16	1·85	8	1·37	15. Mutiny, sickness, casualty to crew, or refusing duty
6	1·28	9	2·20	22	2·56	15	2·50	16. Ship damaged, loss of sails, bulwarks, &c.
5	1·06	2	0·47	18	2·08	7	1·18	17. Water-logged
86	18·30	81	20·87	143	16·57	106	17·46	Number of casualties
4	0·85	5	1·33	5	0·58	5	0·81	Number of steamers
37	7·87	19	4·93	173	20·04	77	12·68	
—	—	—	—	—	—	—	—	
470	—	389	—	863	—	608	—	
463	—	377	—	820	—	590	—	

5.—A Table showing the Results of Wrecks and Casualties to Ship and to Cargo, with List," during the Four Quarters of 1877, and the respective Percentages thereon, Compared

	Sailing Vessels.							
	First Quarter.				Second Quarter.			
	1877.		Average Eleven previous Years.		1877.		Average Eleven previous Years.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
<i>Results to Ship—</i>								
Total loss	497	15'14	519	18'04	316	17'14	337	20'15
Constructive loss	51	1'55	51	1'78	33	1'79	37	2'22
Great damage.....	484	14'74	304	10'57	261	14'15	169	10'12
Minor damage	1,660	50'57	1,420	49'36	811	43'98	726	43'40
Raised after sinking	22	0'67	11	0'39	20	1'08	9	0'51
Not damaged or results } unknown.....	569	17'33	571	19'86	403	21'86	395	23'60
Total	3,283	—	2,877	—	1,844	—	1,672	—
<i>Results to Cargo so far as reported—</i>								
All lost	241	7'34	310	10'82	140	7'59	179	10'70
Part lost	128	3'75	155	5'40	91	4'94	87	5'21
All saved.....	9	0'27	18	0'45	7	0'38	6	0'34
Forwarded	13	0'40	7	0'26	6	0'33	5	0'30
Heated	8	0'24	7	0'24	3	0'16	3	0'16
Shifted	41	1'25	43	1'51	19	1'03	18	1'08
Otherwise damaged	48	1'46	43	1'49	48	2'60	26	1'59
Salvage services	329	10'02	291	10'13	149	8'08	146	8'71
<i>Lives—</i>								
Crews saved	324	9'87	270	9'37	193	10'47	158	9'48
Crews drowned	51	1'55	26	0'90	35	1'90	21	1'25
Lives lost so far as re- ported in both ships and steamers	394	—	374	—	241	—	499	—

Salvage Services, Crews Saved or Drowned and Lives Lost, so far as reported in "Lloyd's with the Average Number and Percentages for the same period of the Eleven Previous Years.

Sailing Vessels.								
Third Quarter.				Fourth Quarter.				
1877.		Average Eleven previous Years.		1877.		Average Eleven previous Years.		
Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	
233	14.29	342	18.38	518	13.72	731	19.86	Results to Ship—
18	1.10	38	2.06	26	0.69	44	1.20	Total loss
163	9.99	217	11.68	370	9.80	424	11.53	Constructive loss
784	48.07	809	43.56	1,980	52.45	1,708	46.38	Great damage
10	0.61	9	0.47	17	0.45	8	0.23	Minor damage
423	25.94	443	23.85	864	22.89	765	20.79	Raised after sinking
								{ Not damaged or results unknown
1,631	—	1,858	—	3,775	—	3,682	—	Total
								Results to Cargo so far as reported—
90	5.52	170	9.16	246	6.52	356	9.68	All lost
84	5.15	85	4.57	253	6.70	213	5.79	Part lost
5	0.31	5	0.28	9	0.24	9	0.24	All saved
3	0.18	4	0.22	4	0.11	4	0.10	Forwarded
5	0.31	3	0.19	4	0.11	5	0.13	Heated
17	1.04	16	0.87	56	1.48	53	1.45	Shifted
34	2.08	30	1.64	56	1.48	37	1.02	Otherwise damaged
157	9.63	156	8.39	407	10.78	328	8.90	Salvage services
								Lives—
142	8.71	159	8.57	365	9.67	355	9.63	Crews saved
9	0.55	13	0.73	24	0.64	31	0.87	Crews drowned
430	—	258	—	520	—	573	—	{ Lives lost so far as reported in both ships and steamers

5.—A Table showing the Results of Wrecks and Casualties to Ship and Cargo.

	Steamers.							
	First Quarter.				Second Quarter.			
	1877.		Average Eleven previous Years.		1877.		Average Eleven previous Years.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Results to Ship—								
Total loss	39	5'94	39	8'35	23	4'86	27	7'92
Constructive loss	1	0'15	3	0'64	1	0'21	2	0'58
Great damage.....	39	5'94	33	7'13	29	6'13	26	7'52
Minor damage	314	47'79	207	44'43	222	46'94	146	42'40
Raised after sinking	4	0'61	3	0'61	3	0'63	3	0'87
Not damaged or results } unknown.....	260	39'57	181	38'84	195	41'23	140	40'71
Total	657	—	466	—	473	—	344	—
Results to Cargo so far as reported—								
All lost	13	1'98	16	3'57	7	1'48	10	2'88
Part lost	30	4'57	17	3'67	23	4'86	16	4'70
All saved.....	1	0'15	1	0'20	1	0'21	—	—
Forwarded	1	0'15	1	0'14	1	0'21	—	—
Heated	—	—	1	0'18	—	—	—	—
Shifted	14	2'13	7	1'58	4	0'85	2	0'61
Otherwise damaged	12	1'83	10	2'26	13	2'75	8	2'22
Salvage services	50	7'61	34	7'26	54	11'42	30	8'63
Lives—								
Crews saved	19	2'89	18	3'69	19	4'02	12	3'51
Crews drowned	11	1'67	3	0'70	2	0'42	1	0'26
Lives lost so far as reported in both ships and steamers (see Sailing Vessels, <i>supra</i>)	—	—	—	—	—	—	—	—

with Salvage Services, Crews Saved or Drowned and Lives Lost—Contd.

Steamers.							
Third Quarter.				Fourth Quarter.			
1877.		Average Eleven previous Years.		1877.		Average Eleven previous Years.	
Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
29	6.26	32	8.41	56	6.83	51	8.71
2	0.43	2	0.46	1	0.12	2	0.35
34	7.34	30	8.07	56	6.83	44	7.54
204	44.06	152	40.22	407	49.63	246	41.81
1	0.22	3	0.77	6	0.73	5	0.83
193	41.69	150	42.07	294	35.85	240	40.76
463	—	377	—	820	—	590	—
11	2.39	11	2.92	24	2.93	18	3.02
20	4.32	15	3.90	42	5.12	24	4.12
—	—	—	—	—	—	1	0.12
—	—	—	—	1	0.12	—	—
1	0.22	—	—	1	0.12	—	—
5	1.08	2	0.65	26	3.17	12	2.00
20	4.32	9	2.29	21	2.56	13	2.17
46	9.93	26	7.01	51	6.22	41	7.03
21	4.53	13	3.57	32	3.90	19	3.24
1	0.22	—	—	3	0.36	2	0.32
—	—	—	—	—	—	—	—

<i>Results to Ship—</i>	
Total loss	
Constructive loss	
Great damage	
Minor damage	
Raised after sinking	
{ Not damaged or results unknown	
Total	
<i>Results to Cargo so far as reported—</i>	
All lost	
Part lost	
All saved	
Forwarded	
Heated	
Shifted	
Otherwise damaged	
Salvage services	
<i>Lives—</i>	
Crews saved	
Crews drowned	
{ Lives lost so far as reported in both ships and steamers (see Sailing Vessels, <i>supra</i>)	

III.—*Failures in England and Wales.*

THE following is the copy of a circular issued by Messrs. John Kemp and Co. last April:—

“ We append a summary of the failures in England and Wales, which it has been our duty to publish in *Kemp's Mercantile Gazette* during the eleven years and three months ending 31st March last:

Year.	First Quarter. 1st January to 31st March.	Second Quarter. 1st April to 30th June.	Third Quarter. 1st July to 30th September.	Fourth Quarter. 1st October to 31st December.	Totals.
1867	3,981	4,081	3,555	4,233	15,850
'68	4,091	4,131	4,139	3,501	15,862
'69	3,819	3,997	3,495	5,207	16,518
'70	2,804	1,589	1,773	1,985	8,151
'71	2,142	2,191	1,837	1,994	8,164
'72	2,192	1,980	1,795	2,145	8,112
'73	2,354	2,299	2,054	2,357	9,064
'74	2,193	2,428	2,339	2,290	9,250
'75	2,331	2,277	2,133	2,453	9,194
'76	2,744	2,573	2,670	2,861	10,848
'77	2,829	2,856	2,610	2,952	11,247
Totals for } 11 years }	31,480	30,402	28,400	31,978	122,260
1878	3,436	—	—	—	—

“ The number of failures published during each of the first three years of this period is much greater than in either of the subsequent years; we attribute these excessive numbers partly to the undue facilities afforded by the Act of 1861, for debtors to escape from their engagements, and partly to the depression of trade which commenced in the year 1866; a large proportion of the number published during the fourth quarter of 1869, and the first quarter of 1870, is attributable to the change in the bankruptcy law which then took place—it may be estimated that not less than 3,000 of those failures were cases in which debtors, with intentions more or less dishonest, hastened the publication of their failure in order that they might not forego the advantage which (up to 31st December, 1869) they could take of the Act of 1861. The first three quarters of 1869 show fewer failures than the corresponding quarters of the two preceding years, and we accept this fact as evidence of a revival of trade and prosperity in that year, notwithstanding the increased total added during the fourth quarter. The years 1870-72, show only moderate numbers of failures; from 1873 to the present time there has been a decided increase, and the number for the first quarter of this year is greater than in any corresponding quarter since the Act of 1869 came into operation.

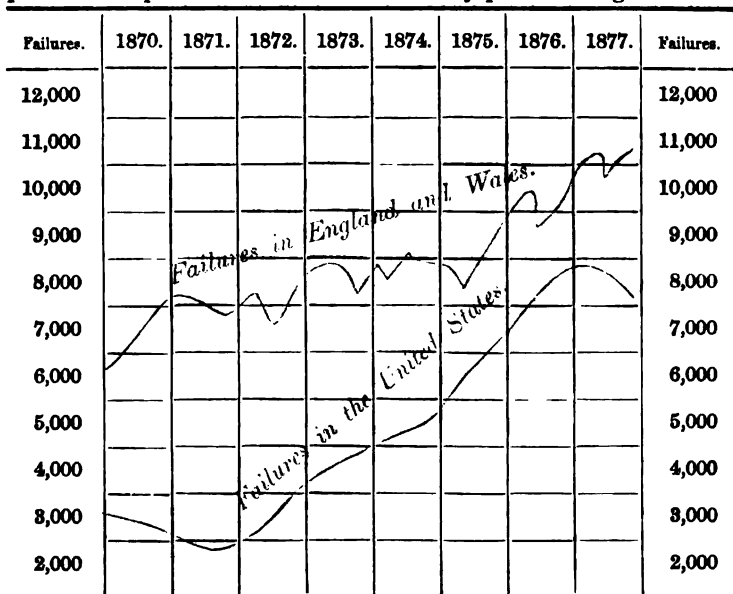
“ It is favourable testimony to the Act of 1869, that the failures under it have been fewer than under its predecessor; this testimony may, however, be qualified by the more favourable state of trade which prevailed during the first eight years of its operation.

“ The question occurs:—Does the number of failures in a year

depend upon natural causes? that is to say, would the number rise and fall periodically according to the state of trade (or national prosperity) if the bankruptcy law remained constant? Whenever failures have become frequent, complaints have been made against the law, and not without reason, but many who complain ignore the existence of any other cause. We compared the foregoing figures with the scientific tables recently published in *Nature*, from the pen of Professor Balfour Stewart,* and, being struck with the coincidence in their fluctuations, we further compared them with the statistics published by Messrs. Dun and Co., of New York,† of the failures in the United States during the past eight years,† which period, being that of the existence of our present bankruptcy law, affords us a fair opportunity for making a comparison. Messrs. Dun and Co. report the following as the total failures in the United States during this period:—

1870.	Number of failures.....	3,551
'71.	"	2,915
'72.	"	4,069
'73.	"	5,183
'74.	"	5,830
'75.	"	7,740
'76.	"	9,092
'77.	"	8,822

" The accompanying diagram shows the relation which these figures bear to those for corresponding years for England and Wales—evidently the same causes which were at work in England to depress trade and overwhelm the struggling and improvident classes, were equally effective in other countries—similar complaints of depression come to us from every part of the globe.



* *Vide Nature*, vol. xvi, pp. 9, 26, and 45.

† Messrs. Dun and Co.'s Annual Circular, January, 1878.

"The discussion which has arisen out of Dr. Hunter's suggestion of a 'famine period' in India, has brought to the public some knowledge of the existence of natural periods or cycles, of an average duration of 11·9 years each. The suggestion that England is affected with the same regularity is but reasonable, and although fortunately for us as a nation the effects do not produce famine, it appears evident that some degree of suffering is caused, and that the number of failures is thereby materially increased—the commercial panics which have occurred with about the same regularity furnish further evidence that this is the case.

"If we make due allowance for the excessive number in the last quarter of 1869, caused by the change in the law, we find that the maximum number of failures in the last cycle occurred in the year 1868, which was the year succeeding the natural minimum; hence we may conclude that about a year is required for the full effect of the natural depression to be reproduced in commerce. The twelve months from 1st October, 1867, to 30th September, 1868, appear to have been more serious to commercial men than either of the complete years, according to the number of failures:—

					Failures.
In the fourth quarter of 1867 there were					4,233
" first " '68 "					4,091
" second " '68 "					4,131
" third " '68 "					4,139
Total					16,594

"These data indicate that we have not yet reached the worst of the present period—assuming that it runs an average length, we have to endure an increasing number of failures which will not reach its maximum until the fourth quarter of 1879. In the face of such signs as these we can only counsel strict economy in every item of expenditure—extreme prudence in embarking in any new venture or in any extension of business—the utmost care in the management of credit accounts, and a patient determination to work and wait for more prosperous times.

"In previous periods of depression, the evils attendant upon them, and which are inevitable, have been seriously augmented by the public mind becoming so alarmed as to be panic-stricken—we trust the present may prove an exception, and that as more light is thrown upon the natural causes and effects which govern such depressions, the public mind will be more composed and willing to wait contentedly for the recurring period of prosperity."

IV.—*The Nature and Extent of our Foreign Food Supplies, and the Sources from whence they are Derived.* By STEPHEN BOURNE.

THE following is taken from the Supplement to the *Statist* of the 23rd March last:—

"The latest published official returns of the trade of the United Kingdom show the total value of the imports during last year to

have been very little short of 394 million pounds, that of the preceding year having been a trifle over 375. Looking back for a period of twenty years, it will be seen that in 1857 the value was 188 million pounds. Of this amount 24 million pounds was exported, thus leaving 164 for consumption or manufacture at home. The proportion thus taken away in 1877 is not yet ascertained, but that of 1876 having been rather more than 56 million pounds, that of last year may, allowing for the slackness of trade, be safely estimated at 53, which would leave the value retained in the country at 341 million pounds, being 22 million pounds beyond that of 1876, and more than double that of 1857. The goods thus allowed for as re-exported are only those which leave the country in an unaltered state, having simply come to it as a market from whence other nations draw their supplies. Dr. Forbes Watson, in a very interesting paper recently read before the Colonial Institute, has carried this deduction a step farther, and reasoning from reliable data, estimates that in 1876 foreign raw material to the value of 58 million pounds was worked up into goods which, having undergone manufacture here, were exported as British. Applying the same method of calculation to the exports of 1857, we may assume that the value of foreign goods thus dealt with would then have been 36 million pounds. Again, dealing with the figures for 1877 in the same manner, we may assume that in addition to the foreign goods exported in their original condition, there were those converted into British manufactures of the value of 56 million pounds. The comparison between the two periods will stand thus:—

[000,000's omitted.]

	1857.	1877.
	£	£
Foreign and colonial goods imported	188,	394,
„ exported unchanged	24,	53,
„ exported worked up	36,	56,
	60,	109,
Retained and consumed at home.....	128,	285,

“Such being the full value of the goods for which we are indebted to foreign producers, the next point to be ascertained is the portion in each of these years which consisted of food.

The Growth of Consumption and Population Compared.

“The following table, compiled for a paper read before the Manchester Statistical Society in April last,* was designed to show the several quantities, under distinctive heads, consumed in each year from 1857 to 1876, and to compare the progressive growth of consumption with the increase of the population. In thus separating articles intended for food from all other, it is not possible to be rigidly accurate, since many substances admit of a twofold use. Nor is it easy to define what really constitutes food; a wide range,

* Transactions of Manchester Statistical Society, Session 1876-77.

therefore, has been adopted by admitting under that designation whatever is consumed through the mouth, whether as a necessary of life or a means of gratification. Under these conditions, spirits, for instance, are included with substances to be used as beverages, and tobacco under the head of miscellaneous. This latter class also takes in such substances as guano, &c., whose use is to stimulate the soil in the production of food, thereby adding to the supply just as much as they would if by their means the larger crops were raised for our use abroad instead of at home. The several figures are set forth in millions (to two decimals), and to guard against the error of taking the quantities of any single year for comparison, an average for the first and last three years has been worked out. These show that whilst in the course of twenty years the number of consumers had increased from $28\frac{1}{2}$ to $32\frac{3}{4}$ millions, the food furnished from abroad had advanced from 59 to 153, a growth of the one by 16, of the other by 160 per cent. This means that on an average each member of the community consumes to the value of two and a half times as much foreign food as he did twenty years back, somewhere about 5*l.* for 2*l.*

Table showing the Total Value of Food Imported between 1857 and 1876, under the several Heads of Animal and Cereal Food, Sugar, &c., and Beverages, Alcoholic and Other.

[In min. £'s to two decimals.]

Years.	Popu- lation.	Total Value.	Animal.	Cereal.	Sugar, Fruit, &c.	Beverages.		Miscel- laneous.
						Alcoholic.	Other.	
1857.....	28'19	64'00	7'60	20'51	18'52	5'68	5'63	6'06
'58.....	28'39	57'00	6'00	21'50	15'81	1'13	5'90	6'66
'59.....	28'59	56'00	6'77	18'24	14'83	3'69	6'59	5'88
'60.....	28'78	80'00	11'15	32'13	13'90	5'43	7'59	9'80
'61.....	28'97	82'00	12'46	35'94	15'62	5'07	7'25	5'66
'62.....	29'26	89'00	13'28	39'53	15'20	4'88	8'60	7'51
'63.....	29'43	79'00	14'01	26'99	15'15	5'51	10'39	6'95
'64.....	29'63	79'00	16'96	20'92	18'94	6'63	8'56	6'99
'65.....	29'86	78'00	20'05	21'28	15'30	4'96	8'83	7'58
'66.....	30'08	91'00	20'40	31'00	14'86	6'45	10'04	8'25
'67.....	30'33	101'00	17'28	42'67	16'31	7'78	9'20	7'76
'68.....	30'62	105'00	16'65	41'29	18'54	7'32	10'83	10'37
'69.....	30'91	106'00	21'37	39'61	19'45	7'34	9'22	9'01
'70.....	31'21	100'00	20'38	34'39	20'37	7'63	9'17	8'06
'71.....	31'51	118'00	23'53	42'60	22'05	9'39	9'40	11'03
'72.....	31'84	136'00	22'27	52'89	28'04	9'15	10'71	12'94
'73.....	32'12	147'00	28'41	52'69	27'06	10'75	10'64	17'45
'74.....	32'43	143'00	30'44	51'47	26'21	9'09	11'20	14'59
'75.....	32'75	157'00	34'14	54'74	27'34	9'48	13'26	18'04
'76.....	33'09	159'00	38'00	53'00	26'35	11'23	12'00	18'42
In 20 years	—	2,027'00	381'15	733'39	389'85	138'59	185'01	199'01
Averages	30'40	101'35	19'06	36'67	19'49	6'93	9'25	9'86
First 3 yrs.	28'39	59'00	6'79	20'08	16'39	3'50	6'04	6'20
Last 3 yrs.	32'75	153'00	34'19	53'07	26'63	9'93	12'15	17'01
Increase per cent. }	16'	160	403	165	62	184	101	174

"For 1877 the full particulars are not yet published, but those already ascertained show that an addition to cereals of 12 million pounds, to sugar, &c., of 8, with a deduction from animal of 1, and a transfer of 1,000,000*l.* from alcoholic to other beverages, will about represent the state of the case for that year, and bring up the total to say 180 million pounds.

"Some little explanation is necessary as to the several classes. In the first there are included all living animals (suitable for food), fresh and salted meat, fish and poultry, and other products, milk, butter, cheese, eggs, lard, &c. In the second every description of grain, flour, rice, and farinaceous substances generally, no separation being made between that which is adapted for human as distinct from animal food. That which is consumed by oxen, sheep, swine, and poultry is in fact but human food under another form, and should, if its quantity could be ascertained, be placed under the first head; but it would have been desirable, had it been possible, to have excluded at least so much as serves for the support of horses. Another deduction also is requisite on account of the grain used for malting and distilling; and the same remark applies to the third class on account of the sugar and molasses devoted to the same uses. The quantities of foreign grain thus employed cannot be ascertained, but an estimate is possible of the whole consumption for these purposes of home and foreign produce taken together, and since whatever of home growth is converted into beer or spirits has to be replaced by importations from abroad, it will not be unfair to abstract it all from the heading of cereal food, and add it to that of alcoholic beverages. The amounts thus to be transferred may be calculated as follows:—

£	£	£	£
1857..... 10·93	1862 7·66	1867..... 12·64	1872..... 13·37
'58..... 9·19	'63 9·24	'68..... 13·87	'73..... 14·61
'59..... 9·27	'64 9·60	'69..... 12·02	'74..... 16·47
'60..... 10·14	'65 9·57	'70..... 12·63	'75..... 15·91
'61..... 10·15	'66 11·43	'71..... 12·16	'76..... 14·11

Total, 234·97*l.*; average, 11·75*l.*

"Under the third head, sugar, fruit (dried or fresh), and vegetables are thrown together, as a class occupying a subsidiary place to that of the staple articles of bread and meat.

"The various substances in use as beverage, whether imported in the liquid form fit for drinking, or as materials to be subsequently prepared for consumption, admit of subdivision into the two sub-classes of alcoholic and other liquors as shown under the fourth head. The first division, when supplemented by the amount transferred as above from cereals, is nearly trebled, the average being raised from 6·93 to 18·68 pounds. This, it must be remarked, does not represent either the total or the comparative expenditure by the consumers of alcoholic as compared with non-intoxicating fluids, for the major part of the value assigned to the former is simply that of the raw material from which the liquor is prepared. This in the case of spirits and beer is a very small proportion of the outlay, the chief cost being in the manufacture of the finished

liquor, whilst tea, coffee, &c., require little or no expense to fit them for immediate use. The last heading embraces everything not included in the previous ones, together with many substances which, without being in themselves food, contribute to its production or increase.

"Without pretending to very strict accuracy of detail, the total values of the first and last year in the series may be thus subdivided:—

[000,000's omitted.]

	1857.	1877.
	£	£
Animal	8,	37,
Cereal	10,	52,
Sugar and other vegetables	18,	34,
Beverages—Alcoholic	16,	24,
Other	6,	13,
Miscellaneous	6,	20,
	64,	180,

"The extreme importance of these figures, and the great disparity between those of the two periods, become more apparent when brought into juxtaposition with the value of goods exported at the same dates; thus:—

[000,000's omitted.]

	1857.	1877.
	£	£
British produce and manufacture	122,	199,
Deduct foreign material in them	36,	56,
	86,	143,
Foreign food consumed	64,	180,
Other foreign goods retained	64,	105,
	128,	285,

"In the former year we exported, as the produce of British labour and capital, 86 million pounds, to meet an import of food to the extent of 64 million pounds, an excess of 22 million pounds. In the latter, 143 million pounds to meet 180 million pounds, a deficiency of 37 million pounds.

"Although for the purpose of comparing one description of food with another, and the several years one with the other, as well as for viewing the whole subject in its financial bearings, it is necessary to express the whole in money value, the true measure of our dependence upon foreign supplies is, since the prices vary so much from time to time, best furnished by quantities rather than cost.

The staple articles obtained from abroad are shown in the following tables—the one for food, the other for beverages, with the addition also of a column for tobacco, the weights and measures being, as the values were, stated in millions to two places of decimals, the average and percentages being drawn out as before.

Table showing the Quantities of the Principal Articles of Food Imports Retained for Home Consumption, 1857-76.

Years.	Animal.		Cereals, &c., &c.			Other Vegetables.	
	Meat.	Butter, Cheese, and Lard.	Wheat.	Other Grain.	Rice.	Sugar and Molasses.	Currants and Raisins.
	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.
1857.....	1'35	1'00	17'23	18'09	2'24	8'01	0'44
'58.....	1'17	0'86	23'16	21'50	2'56	9'56	0'64
'59.....	1'21	0'92	21'43	18'99	0'33	9'56	0'78
'60.....	1'85	1'61	31'81	38'43	0'35	9'33	0'92
'61.....	1'81	2'01	36'26	27'90	1'61	10'26	0'91
'62.....	2'46	2'21	49'95	25'86	2'65	10'49	0'98
'63.....	2'99	2'20	30'74	30'25	1'46	10'19	1'08
'64.....	3'31	2'04	28'74	19'31	1'53	10'24	1'03
'65.....	3'48	2'04	25'79	24'63	0'57	11'17	1'09
'66.....	3'16	2'23	29'30	34'82	1'13	11'70	1'06
'67.....	2'55	2'27	38'88	27'79	1'76	12'09	1'07
'68.....	2'29	2'17	36'19	31'27	2'85	12'22	1'15
'69.....	3'22	2'45	44'36	36'83	3'74	12'47	1'15
'70.....	3'08	2'36	35'34	38'40	2'25	13'86	1'11
'71.....	3'96	2'93	43'31	40'59	2'37	13'86	1'23
'72.....	4'07	2'60	47'39	55'68	4'00	14'08	1'35
'73.....	5'48	3'15	50'53	44'32	3'33	15'35	1'23
'74.....	5'11	3'39	48'47	45'23	3'00	15'47	1'30
'75.....	5'69	3'55	59'45	49'51	3'48	17'91	1'25
'76.....	6'31	3'65	50'97	67'14	3'05	16'62	1'46
In 20 years	64'55	45'64	749'30	691'54	44'26	244'44	21'23
Average	3'23	2'28	37'47	34'58	2'21	12'22	1'06
First 3 yrs.	1'24	0'98	20'61	19'53	1'71	9'04	0'62
Last 3 „	5'70	3'53	52'96	53'96	3'18	16'66	1'34
Increase per cent. }	360	280	157	176	86	84	116
	325		163			86	

Table showing the Quantities of the Principal Imported Articles Retained, for Home Use as Beverages; also of Tobacco, 1857-76.

Years.	Alcoholic.		Non-Alcoholic.			Tobacco.
	Spirits.	Wines.	Tea.	Coffee.	Cocoa.	
	Gals.	Gals.	lbs.	lbs.	lbs.	lbs.
1857.....	4'73	6'60	69'13	34'35	2'65	32'68
'58.....	4'58	6'27	73'20	35'21	2'86	33'92
'59.....	4'93	6'78	76'30	34'33	3'01	34'63
'60.....	5'52	6'72	76'82	35'50	3'23	35'23
'61.....	5'19	10'69	77'93	35'20	3'41	34'83
'62.....	5'19	9'76	78'79	34'45	3'62	35'42
'63.....	5'57	10'42	85'18	32'76	3'71	37'37
'64.....	6'30	11'40	88'60	31'36	3'86	38'01
'65.....	6'74	11'99	97'83	30'51	3'83	38'90
'66.....	7'80	13'24	102'27	30'68	4'05	40'50
'67.....	8'34	13'67	110'99	31'28	4'23	40'72
'68.....	8'40	15'06	106'82	30'36	5'11	40'98
'69.....	8'17	14'73	111'80	28'84	5'70	41'37
'70.....	8'44	15'08	117'55	30'23	6'15	41'37
'71.....	8'93	16'14	123'40	30'60	7'25	42'50
'72.....	9'07	16'77	127'66	31'17	7'79	43'68
'73.....	10'26	17'91	131'88	31'79	8'28	45'48
'74.....	10'68	17'17	137'28	31'26	8'85	46'58
'75.....	11'85	17'24	145'33	32'05	9'96	47'82
'76.....	11'55	18'66	149'13	38'34	10'43	48'57
In 20 years	152'24	256'30	2,087'89	645'22	107'98	800'56
Average	7'61	12'81	104'40	32'26	5'40	40'03
First 3 years ..	4'75	6'55	72'88	34'63	2'84	33'74
Last 3 " ..	11'36	17'69	147'25	32'22	9'75	47'66
Increase } per cent. }	140	170	102	- 7	243	41
	157		71			

The Sources of Supply.

"Coming now to consider the sources from whence these supplies are derived, and following the same subdivision of articles under the principal heads into which the various descriptions of food may be conveniently divided, the table here given will show the value of each kind which we received from the different countries to whom we are customers. These figures are for the year 1876, those for last year not being yet published. The several totals will not altogether agree with those of the former totals, because in both many small items fail to be included and get sunk among the miscellaneous. Neither is it possible to deduct from each country the amount of its produce which is re-exported. This, however, is of little importance, the object being not so much to see how much from each producing country we keep to supply our wants, as how much there is available if we should wish to keep it. The miscellaneous items not being shown here, the comparison must be

with the total of the first table less those there included; and deducting 18.42 from 159.00, we have 140.58, an almost identical total with that of 141.29 arrived at in the latter table after deducting from the full value of the goods re-exported the whole amount stated as imported. The totals of the different kinds come sufficiently near to the former ones to establish the substantial accuracy of each compilation.

Table showing the Countries from which the specified Articles of Food Imported in 1876 were Obtained, with the Respective Values of each Class.

[In million pounds to two decimals.]

Countries.	Total Value.	Commercial Produce.	Cereal and Farinaceous.	Sugar, Fruit, and Vegetables.	Beverages.	
					Alcoholic.	Other.
Russia	7.16	—	7.15	—	0.01	—
Sweden	2.38	0.30	2.08	—	—	—
Norway	0.20	0.16	0.04	—	—	—
Denmark	3.74	2.64	1.10	—	—	—
Germany	10.33	4.87	2.67	2.24	0.53	0.02
Holland	8.56	5.56	0.27	1.87	0.76	0.10
Belgium	3.35	1.72	0.02	1.34	0.21	0.06
France	18.12	6.23	1.90	4.48	5.51	—
Portugal	1.93	0.34	—	0.31	1.28	—
Spain	4.39	0.42	0.17	1.72	2.08	—
Italy	0.95	0.02	0.42	0.38	.13	—
Austria	0.56	—	0.56	—	—	—
Greece	1.59	—	—	1.59	—	—
Turkey	5.74	—	4.99	0.75	—	—
Other places	1.08	0.13	0.51	0.41	0.03	—
Europe	70.08	22.39	21.88	15.09	10.54	0.18
British India	13.34	—	4.84	1.54	0.02	6.94
Australia	1.98	0.36	1.60	—	0.02	—
China	10.54	—	—	0.40	—	10.14
Japan	0.07	—	0.06	—	—	0.01
Other places	2.49	—	0.13	2.30	0.02	0.04
Asia and Australia	28.42	0.36	6.63	4.24	0.06	17.13
Egypt	2.41	—	2.15	0.25	0.01	—
Cape, Mauritius, &c.	0.98	—	0.02	0.86	0.04	0.06
Other places	1.03	—	0.50	0.44	0.07	0.02
Africa	4.42	—	2.67	1.55	0.12	0.08
United States	36.48	13.90	21.41	0.75	0.31	0.11
Canada and New- foundland	4.66	1.80	2.81	0.05	—	—
South America	4.59	0.09	0.54	2.23	—	1.73
West Indies	8.71	—	0.06	6.65	1.01	0.99
America	54.44	15.79	24.82	9.68	1.32	2.83
Imported	157.36	38.54	56.00	30.56	12.04	20.22
Re-exported	16.07	1.54	2.42	2.55	1.29	8.27
Total	141.29	37.00	53.58	28.01	10.75	11.95

“Looking first to the magnitude of our demands upon the several producing countries, we find that the United States stands far before any other; next in rank comes France, British India, China, and Germany; then the West Indies, Holland, Russia, Turkey, and British North America—the values from these ten standing relatively in the following order:—

[000,000's omitted.]			
	£		£
United States	36,	West Indies	9,
France	18,	Holland	9,
British India	13,	Russia.....	7,
China	11,	Turkey	6,
Germany	10,	British North America.....	5,

These together amount to 124 million pounds, very nearly four-fifths of the contributions to our necessities from the whole world. Of these, Germany and Holland, more particularly the former, are to a great extent not the real sources of supply, but only the countries through which the rivers and railways of the Continent pass their supplies to our shores. It is probable that some portion of the receipts from the United States are really the produce of Canada, shipped from Portland during the month when the navigation of the St. Lawrence is closed. Turkey too gets the credit of much Austrian produce which finds its way down the Danube. China, on the other hand, sends, to the extent of perhaps a million, by way of Hong Kong.

“Pursuing another mode of division, and collecting together those which come from our own Indian and Colonial possessions, we shall find about 31 million pounds, or one-fifth of the whole, to come from places which own our sway; this proportion being nearly equally divided between India and the Colonies, both together, however, falling short of that which the United States alone sends us.

“The geographical division between the four quarters of the globe will be apparent from an inspection of the table itself; Europe, as would be expected from its contiguity and its more ancient settlement and populous condition, being the largest supplier. America, however, is rapidly advancing upon her, and will doubtless before long do more towards provisioning us than the older continent. Asia and Australia are yearly becoming of more value to us in this respect, but the development of Africa as a granary and grazing territory yet remains to be accomplished.

The Different Kinds supplied by Different Countries.

“Passing from the extent of our whole supplies to the nature of those which each country furnishes, it appears that of animal food the United States again sends us the most—14 millions out of 39; and judging from the speed with which she is taking up the trade of butcher as well as of provision merchant, her superiority in this branch of supply will yearly advance. Next to her comes France, with 6 millions, largely derived from the poultry yard,

2 millions being in eggs and chickens, with nearly 4 in butter. Holland figures for between 5 and 6 millions, of which 3 millions are in dairy produce and 2 in meat, mostly alive; Germany for nearly 5 millions, divided much in the same proportion as Holland; Denmark for nearly 3 millions, and Belgium less than 2. Our own Canadian Dominion sends nearly 2 millions.

"As supplying grain and flour, the United States again heads the list with 21 millions, her vast and luxuriant corn-fields enabling her to send from both sides of the continent, nearness of access from the Atlantic being as much to her advantage there as the superior quality and ability to bear the transit in a marketable condition is to the Pacific. Russia does not send us in an appreciable quantity any food other than grain, of which we took from her in 1876, to the value of 7 million pounds. This quantity was largely increased in 1877, probably by 50 per cent., her desire to anticipate a blockade of her ports pushing forward the supplies which pecuniary necessities rendered it very desirable to convert into cash, and inducing the forwarding of considerable quantities by way of internal communication through other Continental ports. Turkey, including of course the Roumanian provinces, has sent us 5 million pounds, of which some considerable portion will be of Austrian or at least Hungarian growth. British India stands next, with not far from 5 million pounds, having always largely supplied us with rice, and thanks to railways and irrigation she is now becoming a considerable exporter of wheat. Our own North American province stands for nearly 3 million pounds; Germany for almost as much; whilst Sweden contributes rather more, and Australia rather less, than 2 million pounds each.

"Our next class is that of sugar, fruit and other vegetable productions not being either cereal or for use as beverages. To this the West Indies, our own colonies, in the proportion of about two-thirds, contribute nearly 7 million pounds, the produce of their cane-fields. France more than 4 million pounds, the outcome of her State-subsidised manufacture, to which also Germany, Holland, and Belgium largely owe their ability to find purchasers with us to the extent together of $5\frac{1}{2}$ million pounds. The contributions of Spain, Greece, and Turkey to that class consist mainly of dried fruits. And it must not be forgotten that considerable supplies of sugar come from our own Eastern possessions, as well as those of Java and the Philippines and even China, as well as from the ancient settlements on the continent of South America.

"Of beverages containing alcohol there are but three chief producing countries, and France yields one-half the whole supply, namely, $5\frac{1}{2}$ out of 12 million pounds, rather more than half being wine, the remainder, with the exception of a few liquors, brandy. Spain contributes 2 millions in wine, and Portugal rather more than half as much in the same; Germany and Holland together 1,000,000*l.* in Geneva and potato spirit: the West Indies, principally our own, 1,000,000*l.* in rum.

"Of other substances for producing beverages, China sent 10 million pounds in tea, of which one-fifth is again exported; India $2\frac{1}{2}$ million pounds in the same, and more than as much in coffee from

Ceylon, in all nearly 7 million pounds. Central and South America $1\frac{1}{2}$ million pounds; and the West Indies, 1,000,000*l.* in coffee and cocoa, the larger proportion of these articles being again exported, principally to the continent.

Comparison of Foreign with Home Supplies.

"The most obvious impression on perusing these details is one of surprise at the extent to which the wants of the country are supplied from abroad, and the ease with which the provision is made, not unmixed with a measure of anxiety at the dependence in which it places us upon other countries, and the inconveniences which might ensue upon interference with peaceful relations or other national disturbances. Nor is the force of this impression lessened by a comparison of the quantities produced at home with those received from abroad, as seen in the following table:—

Table of the Quantities of Home Raised Wheat and Meat, compared with Foreign Importations, during the last Ten Years.

[In millions to two decimals.]

Years.	Wheat.		Meat.	
	Home.	Foreign.	Home.	Foreign.
	cwt <i>s.</i>	cwt <i>s.</i>	cwt <i>s.</i>	cwt <i>s.</i>
1867	40'65	38'88	25'22	2'55
'68	74'26	36'19	24'61	2'29
'69	62'27	44'86	24'11	3'22
'70	65'22	35'34	24'96	3'08
1871	53'62	43'31	25'37	3'96
'72	54'53	47'39	26'13	4'07
'73	44'77	50'53	26'23	5'48
'74	62'43	48'47	26'46	5'11
'75	42'12	59'46	26'04	5'69
'76	43'99	50'97	25'87	6'31
	543'86	454'89	255'00	41'76

"Adding to the wheat and meat thus shown, the estimated production at home of fish, butter, cheese, and potatoes, and the actual quantities imported from abroad, and reducing the whole to their equivalents in wheat as flesh formers, according to estimates by the highest authorities, the average total consumption during the six years ending with 1876 may be thus stated:—

[000,000's omitted.]

	Home Produce.	Foreign Supply.
	cwt <i>s.</i>	cwt <i>s.</i>
Wheat.....	54,	53,
Meat equal to	26,	5, $\frac{1}{2}$
Cheese and butter	3,	3,
Potatoes..... "	9,	$\frac{1}{2}$
	92,	62,

Concluding Observations.

"The conclusion thus arrived at would appear to be that for absolute sustenance we rely upon home and foreign produce in somewhere about the proportion of three to two. The articles which hold a secondary place as a means of support are more foreign than British, and adding these to those of higher importance it is probable that both in value and quantity about half of our food is of foreign origin. Or by pursuing another computation based upon the estimated life-sustaining powers of different descriptions of food, it may be concluded that, out of the 33 millions of inhabitants in the British Isles, the imported food actually furnishes nutriment for 15.* Since, therefore, we are making no material progress in extracting more food from our own soil, and the population goes on to increase; could anything happen to deprive us of access to our neighbours' stores, more than half of our population would be destitute of food. The bare possibility of such a catastrophe need not, in the face of its extreme improbability, excite more alarm than the apprehension that our coal-fields are on the verge of exhaustion; for if, on the one hand, our demands are enormous, on the other, the sources from whence they can be met are practically boundless. Although at present the Eastern hemisphere yields the larger proportion of both animal and cereal produce, two-thirds of our vegetables, nearly all our alcoholic and other beverages; the Western is pressing forward in the race, for custom. Were the northern latitude to fail in their accustomed tribute to our necessities, the southern would soon step forward to meet our wants. Whilst, should the old countries lose their power or their will to fill our storehouses, the new ones would not be long in laying their treasures at our feet. Our insular position has facilitated approach to our shores from every quarter of the globe, and hitherto our wealth and our enterprise have drawn to us sufficient for every need.

* With all this, however, there are not wanting signs that times of distress may be at hand, and it is too evident that we are already in the vortex of a severe crisis. It is on our trade in times past that we have had to rely for progress, and whatever grounds there may be for confidence in the future, it is clear that at present this is far from being as productive as it has been. To refer again to the official returns from which the figures already used have been compiled, will enable us to see to what extent the countries from whom we buy so largely are taking from us in exchange. The ten previously stated as standing highest on the list thus show the values of British produce and manufacture which we exported to them during the last year:—

[000,000's omitted.]

	£		£
United States	16,	West Indies.....	6,
France	14,	Holland	10,
British India	29,	Russia	4,
China and Hong Kong	8,	Turkey	6,
Germany	20,	British North America	7,

"These together amount to 120 millions, or 4 millions less than the food we take from them, to say nothing of all the raw material and manufactured articles we also purchase.

"Coupling this with the great difference in the total values of the food imports for the two years compared on a former page, viz., 1857, 64 million pounds, and 1877 180 million pounds (which periods most fairly compare with each other from the similarity in the price of wheat ruling in those years), the whole situation is one of extreme gravity, and well worthy of the closest consideration. It is quite evident that there is no lack either in the will or the power of other nations to produce all the food we may need for the support of our population, and equally so that we have both the means and the desire to manufacture more than sufficient goods wherewith to make payment for the supplies they send; but this ever-increasing divergence between the amount of our purchases and our sales cannot continue growing to an indefinite extent. Whatever may be our accumulations of wealth at home, they will not suffice to ward off a scarcity of food, if those who have it to give to us will not take the produce of our labour and capital in exchange, and viewed in this aspect the problem seems difficult of solution. True wisdom points, therefore, to economy in the use of food, especially in cutting off such articles of consumption as are not really of any use in sustaining life, in endeavouring still further to cheapen the goods we manufacture for sale, so as to induce customers to come to us, and beyond this in seeking to open up new markets in which we may find purchasers on more profitable terms, than the old ones are disposed to accord. Whatever wealth we may derive from our investments or our earnings abroad, it cannot be a satisfactory state of things that all the exertions of our labourers, all the skill and capital of our manufacturers, all the enterprise of our traders, fail to provide the food they consume, not because we are slackening in our efforts, but because our customers cease to require what we are willing to sell them, or to give us such prices as will prevent the necessity for our drawing upon other resources."

V.—*Bibliography of Works on the Mathematical Theory of Political Economy.*

It is found that there exists a considerable number of works and memoirs, published during the last hundred years, in which mathematical methods have been applied to the moral sciences, especially to political economy. The mistaken character of some of these attempts, and the prejudice against the introduction of the mathematical methods into the moral and social sciences, have caused these works to be overlooked. Many of them have been long forgotten, and it is probable that some may exist which still elude inquiry. Partly with the purpose of discovering such forgotten works and memoirs, the following preliminary list of writings on the mathematical theory of political economy has been prepared, and it is now printed in the hope that suggestions may be thereby elicited for its extension and correction. The Honorary Secretaries

of the Statistical Society will be glad to receive information about omitted books, memoirs, or papers, addressed to "The Assistant Secretary, Statistical Society, Somerset House Terrace, Strand, London, W.C."

It should be noted that the present list is not intended to include works on vital statistics, sanitary science, anthropometry, &c., but merely mathematical treatises on wealth, value, capital, interest, rent, taxation, &c.

1793. LANG. *Historische Entwicklung der Deutschen Steuerverfassung.*
1802. CANARD (Nicolas François). *Principes d'Economie Politique: Ouvrage couronné par l'Institut.* 8vo. Paris.
1802. BRISSON (B.). *Essai sur la Navigation.* Paris.
1807. LANG. *Ueber den obersten Grundsatz der Politischen Oeconomie.* 8vo. Riga.
1816. BUQUOY (G. Graf von). *Theorie der Nationalwirthschaft.* Leipzig; hierzu 3 Nachträge, 1816-18.
1825. FUOCO (Francesco). *Saggi Economici. Prima Serie.* 2 tom, 8vo. Pisa, 1825-27.
1829. WHEWELL (William). *Mathematical Exposition of some Doctrines of Political Economy.* Cambridge Philosophical Transactions, vol. iii, pp. 191—230. 4to. Cambridge.
1831. WALRAS (Auguste). *De la Nature de la Richesse et de l'origine de la Valeur.* 8vo. Paris. (Pp. xxiv, 334.)
1831. WHEWELL (William). *Mathematical Exposition of the Leading Doctrines in Mr. Ricardo's "Principles of Political Economy and Taxation."* Cambridge Philosophical Transactions, vol. iv, pp. 155—198. 4to. Cambridge.
1838. COURNOT (Augustin). *Recherches sur les Principes Mathématiques de la Théorie des Richesses.* 8vo. Paris. (Pp. xi, 198.)
1838. TOZER (John). *Mathematical Investigation of the Effect of Machinery on the Wealth of a Community in which it is employed, and on the Fund for the Payment of Wages.* Cambridge Philosophical Transactions, vol. vi, pp. 507—522. 4to. Cambridge.
1839. HAGEN (Karl Heinrich). *Von der Staatslehre und von der Vorbereitung zum Dienste in der Staatsverwaltung. Aufsätze gerichtet an angehende Cameralisten zunächst an seine Herren zuhören, von K. H. H.* 8vo. Königsberg. (Pp. 477.)
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1840. TOZER (John). *On the Effect of the Non-Residence of Landlords, &c., on the Wealth of a Community.* Cambridge Philosophical Transactions, vol. vii, pp. 189—196. 4to. Cambridge.
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1844. HAGEN (C. H.). *Die Nothwendigkeit der Handelsfreiheit für das National-einkommen, mathematisch nachgewiesen.* 8vo. Königsberg. (Pp. 32.)
1844. HAGEN (C. H.). *System of Political Economy. Translated from the German by John Prince Smith.* 8vo. London. (Pp. viii, 88.)
1847. BORDAS. *De la Mesure de l'Utilité des Travaux Publics. Annales des Ponts et Chaussées, 1847, 1^{er} semestre, 2^{me} série, tome xiii, p. 249.* 8vo. Paris.
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1849. ESMENARD DU MAZET (Camillo). *Nouveaux Principes d'Economie Politique.* 8vo. Paris. (Pp. ix, 466.)
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1850. MINARD. De l'Usage Gratuit des Constructions établies aux Frais de l'Etat. Annales des Ponts et Chaussées, 2^e série, 1^r semestre. 8vo. Paris. (P. 27.)
1850. LARDNER (Dionysius). Railway Economy. 8vo. London. (Chapter xiii.)
1851. ESMENARD DU MAZET. De la Valeur : Lettre à M. J. Garnier. 8vo. Paris.
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1874. BOCCARDO (Ghirolamo). *Dizionario Universale della Economia Politica e del Commercio.* 8vo. Milano.
1874. LEFFÈVE (H.). *Principes de la Science de la Bourse. Méthode approuvée par la Chambre Syndicale des Agents de Change de Paris.* 8vo. Paris. (Pp. 113.)
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1877. MADSEN (C. L.). *Recherches sur la loi du Mouvement Télégraphique International.* 8vo. Copenhagen, Paris. (Pp. ix, 68, avec 10 Tableaux.)
1878. WESTERGAARD (Harald). *Den Sandsynlige Lov for den Internationale Telegraftrafik Anmeldt af H. W.* 8vo. Copenhagen.
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VI.—Periodical Returns.

[By an oversight, certain tables in the last number of the *Journal* which were intended to be annual, contained only figures for a single quarter of the year. The following tables contain the requisite information for the whole year.]

**BRITISH CORN.—*Gazette Average Prices* (ENGLAND AND WALES)
Weekly for 1877.**

[This Table is communicated by the Statistical and Corn Department, Board of Trade.]

Weeks ended on Saturday.	Weekly Average. (Per Imperial Quarter.)			Weeks ended on Saturday.	Weekly Average. (Per Imperial Quarter.)		
	Wheat.	Barley.	Oats.		Wheat.	Barley.	Oats.
1877.	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	1877.	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
January 6	51 2	38 9	24 7	July 7	61 5	35 6	27 10
„ 13	51 3	39 —	24 8	„ 14	62 3	34 7	28 10
„ 20	51 11	39 7	24 11	„ 21	63 —	32 5	28 —
„ 27	52 3	39 11	24 10	„ 28	64 6	39 —	27 10
February 3	52 7	40 7	25 8	August 4	65 6	35 5	28 7
„ 10	52 3	40 8	25 4	„ 11	65 8	34 7	27 4
„ 17	51 —	40 8	24 9	„ 18	64 9	32 9	27 10
„ 24	50 1	40 4	25 7	„ 25	63 10	33 9	28 4
March 3	50 11	40 —	26 3	September 1	62 —	34 6	27 5
„ 10	51 4	40 8	25 11	„ 8	60 6	39 —	28 5
„ 17	51 3	40 8	26 5	„ 15	59 —	40 1	27 2
„ 24	51 2	41 8	24 9	„ 22	57 6	43 8	25 10
„ 31	51 1	41 4	24 6	„ 29	56 5	43 11	25 3
April 7	51 5	41 11	25 5	October 6	55 11	44 2	24 6
„ 14	52 4	40 —	24 11	„ 13	52 2	43 6	23 9
„ 21	53 9	41 4	24 10	„ 20	52 9	42 6	23 5
„ 28	55 10	40 6	25 8	„ 27	53 7	42 4	23 8
May 5	60 6	40 5	27 6	November 3	53 8	42 4	24 2
„ 12	65 7	39 7	26 10	„ 10	52 5	43 8	24 6
„ 19	68 9	39 11	29 —	„ 17	51 8	43 8	24 9
„ 26	68 6	37 9	28 1	„ 24	51 5	44 —	24 3
June 2	66 11	36 2	27 2	December 1	51 7	44 2	24 11
„ 9	65 —	36 6	27 7	„ 8	51 4	44 1	23 10
„ 16	64 1	34 7	26 1	„ 15	51 7	44 —	24 —
„ 23	64 —	36 11	26 2	„ 22	51 4	43 8	23 11
„ 30	62 6	33 11	28 9	„ 29	51 9	43 —	23 4

**BRITISH CORN.—Gazette Average Prices (ENGLAND AND WALES),
Summary for 1877.**

[This Table is communicated by the Statistical and Corn Department, Board of Trade.]

Average for	Per Imperial Quarter.					
	Wheat.		Barley.		Oats.	
1877.	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
January	51	7	39	3	24	9
February	51	7	40	4	25	4
March	51	1	40	9	25	6
First quarter	51	4	40	2	25	2
April	53	4	40	11	25	2
May	65	10	39	11	27	10
June	64	6	35	7	27	1
Second quarter	61	5	38	5	26	9
July	62	9	35	4	28	1
August	64	11	34	1	28	—
September	59	1	40	2	26	9
Third quarter	62	—	36	10	27	7
October	53	7	43	1	23	10
November	52	3	43	3	24	5
December	51	6	43	8	24	—
Fourth quarter	52	4	43	4	24	—
THE YEAR 1877	56	9	39	8	25	11

BANK OF ENGLAND.

Pursuant to the Act 7th and 8th Victoria, cap. 32 (1844),

[0,000's omitted.]

ISSUE DEPARTMENT.					COLLATERAL COLUMNS.	
1	2	3	4	5	6	7
Liabilities.	DATES.	Assets.			Notes in Hands of Public. (Col. 1 minus col. 16.)	Minimum Rates of Discount at Bank of England.
		Government Debt.	Other Securities.	Gold Coin and Bullion.		
Notes Issued.	(Wednesdays.)					
£	1877.	£	£	£	£	1877. Per cent.
Mins.		Mins.	Mins.	Mins.	Mins.	
42.53	Jan. 3	11.02	3.98	27.53	28.62	
49.56	" 10	11.02	3.98	27.35	28.30	2
41.48	" 17	11.02	3.98	26.48	28.03	
41.32	" 24	11.02	3.98	26.32	27.64	
40.86	" 31	11.02	3.98	25.86	27.60	
40.63	Feb. 7	11.02	3.98	25.63	27.81	
40.59	" 14	11.02	3.98	25.59	27.55	
40.82	" 21	11.02	3.98	25.82	27.17	
41.01	" 28	11.02	3.98	26.01	27.22	
40.51	Mar. 7	11.02	3.98	25.51	27.35	
40.56	" 14	11.02	3.98	25.55	27.05	
40.50	" 21	11.02	3.98	25.50	26.96	
40.74	" 28	11.02	3.98	25.74	27.98	
40.28	April 4	11.02	3.98	25.28	28.41	2
40.08	" 11	11.02	3.98	25.08	28.57	
40.18	" 18	11.02	3.98	25.18	28.42	
39.84	" 25	11.02	3.98	24.84	28.39	
39.23	May 2	11.02	3.98	24.23	29.08	3
38.97	" 9	11.02	3.98	23.97	28.55	
38.98	" 16	11.02	3.98	23.98	28.48	
39.00	" 23	11.02	3.98	24.00	28.06	
39.02	" 30	11.02	3.98	24.02	27.95	
39.44	June 6	11.02	3.98	24.44	28.03	
39.83	" 13	11.02	3.98	24.83	27.73	
40.69	" 20	11.02	3.98	25.69	27.40	
40.91	" 27	11.02	3.98	25.91	28.00	
41.08	July 4	11.02	3.98	26.08	28.78	2½
41.75	" 11	11.02	3.98	26.75	28.77	2
41.78	" 18	11.02	3.98	26.78	28.60	
41.25	" 25	11.02	3.98	26.25	28.47	
40.94	Aug. 1	11.02	3.98	25.94	28.76	
40.36	" 8	11.02	3.98	25.36	28.90	
39.69	" 15	11.02	3.98	24.69	28.54	
39.43	" 22	11.02	3.98	24.43	28.20	
39.19	" 29	11.02	3.98	24.19	27.91	3
39.00	Sept. 5	11.02	3.98	24.00	28.15	
38.63	" 12	11.02	3.98	23.62	27.71	
38.68	" 19	11.02	3.98	23.68	27.53	
38.45	" 26	11.02	3.98	23.45	27.40	
37.74	Oct. 3	11.02	3.98	22.74	28.75	4 Oct. 4
37.11	" 10	11.02	3.98	22.11	28.35	11 " 5
36.92	" 17	11.02	3.98	21.92	28.30	
36.99	" 24	11.02	3.98	21.99	27.69	
36.99	" 31	11.02	3.98	21.99	28.11	
36.46	Nov. 7	11.02	3.98	21.46	27.64	
36.43	" 14	11.02	3.98	21.43	27.29	
36.55	" 21	11.02	3.98	21.55	26.91	
37.41	" 28	11.02	3.98	22.41	26.76	29 Nov. ... 4
37.84	Dec. 5	11.02	3.98	22.84	27.00	
38.09	" 12	11.02	3.98	23.09	26.44	
38.18	" 19	11.02	3.98	23.18	26.41	
38.23	" 26	11.02	3.98	23.23	26.80	

—WEEKLY RETURN.

for Wednesday in each Week, during the Year 1877.

[0,000's omitted.]

8	9	10	11	12	13	14	15	16	17	18
BANKING DEPARTMENT.										
Liabilities.					DATES. (Wedn'sdays.)	Assets.				Totals of Liabili- ties and Assets.
Capital and Rest.		Deposits.		Seven Day and other Bills.		Securities.		Reserve.		
Capital.	Rest.	Public.	Private.			Government.	Other.	Notes.	Gold and Silver Coin.	
£	£	£	£	£	1877.	£	£	£	£	£
Mins.	Mins.	Mins.	Mins.	Mins.		Mins.	Mins.	Mins.	Mins.	Mins.
14,55	3,12	6,20	25,94	,33	Jan. 3	15,97	19,58	13,91	,68	50,14
14,55	3,28	4,37	28,39	,38	" 10	18,76	17,51	14,06	,65	50,97
14,55	3,32	3,95	28,09	,35	" 17	18,27	17,67	13,45	,87	50,26
14,55	3,32	4,10	27,37	,33	" 24	17,32	17,76	13,68	,91	49,67
14,55	3,31	4,84	25,14	,31	" 31	16,37	17,73	13,26	,79	48,16
14,55	3,34	5,61	23,52	,33	Feb. 7	16,00	17,79	12,81	,75	47,35
14,55	3,34	6,63	22,89	,30	" 14	16,00	17,82	13,04	,85	47,71
14,55	3,34	6,86	23,15	,28	" 21	16,02	17,58	13,65	,93	48,18
14,55	3,74	7,21	24,04	,26	" 28	16,03	19,07	13,79	,91	49,80
14,55	3,74	8,30	22,23	,30	Mar. 7	15,99	19,05	13,16	,92	49,12
14,55	3,74	8,70	22,29	,26	" 14	16,00	19,10	13,50	,94	49,54
14,55	3,76	8,88	22,26	,28	" 21	16,00	19,34	13,54	,84	49,72
14,55	3,76	11,53	22,61	,30	" 28	15,50	23,77	12,76	,73	52,75
14,55	3,76	9,91	22,23	,30	April 4	15,31	22,85	11,87	,70	50,73
14,55	3,06	6,82	23,43	,38	" 11	15,32	19,52	11,51	,90	47,25
14,55	3,07	6,46	23,19	,35	" 18	15,33	19,49	11,76	1,02	47,60
14,55	3,07	6,47	22,48	,32	" 25	15,28	19,27	11,45	,84	46,89
14,55	3,06	6,32	22,48	,34	May 2	15,34	20,48	10,15	,78	46,75
14,55	3,07	6,64	21,68	,34	" 9	15,35	19,65	10,43	,86	46,28
14,55	3,06	6,58	21,70	,33	" 16	15,37	19,36	10,50	1,01	46,24
14,55	3,08	6,42	22,17	,28	" 23	15,37	19,34	10,94	,86	46,50
14,55	3,08	6,52	22,14	,26	" 30	15,37	19,08	11,07	,96	46,50
14,55	3,03	7,25	21,70	,26	June 6	15,21	19,32	11,41	,78	46,78
14,55	3,04	7,91	21,14	,27	" 13	15,23	18,66	12,10	,82	46,91
14,55	3,04	8,13	21,89	,26	" 20	15,23	18,44	12,29	,92	47,87
14,55	3,04	8,70	20,96	,24	" 27	15,21	18,51	12,91	,93	47,55
14,55	3,13	5,73	24,90	,28	July 4	14,99	20,43	12,30	,87	48,59
14,55	3,30	3,70	26,37	,31	" 11	16,09	18,29	12,98	,93	48,29
14,55	3,33	5,35	24,63	,31	" 18	15,89	18,25	13,18	,85	48,17
14,55	3,33	4,90	23,66	,29	" 25	14,99	18,18	12,78	,78	46,73
14,55	3,35	5,37	23,08	,31	Aug. 1	15,24	18,44	12,18	,80	46,66
14,55	3,36	5,28	21,64	,36	" 8	14,99	18,03	11,46	,71	45,19
14,55	3,36	4,61	22,46	,34	" 15	14,99	18,27	11,15	,91	45,32
14,55	3,36	4,29	22,77	,33	" 22	14,99	18,19	11,33	,90	45,30
14,55	3,34	4,30	23,01	,35	" 29	14,91	18,52	11,28	,84	45,55
14,55	3,69	4,31	23,72	,43	Sept. 5	14,38	19,60	10,85	,87	45,70
14,55	3,69	4,51	22,73	,38	" 12	14,17	19,91	10,91	,87	45,86
14,55	3,71	4,88	22,22	,34	" 19	14,12	19,68	11,15	,76	45,70
14,55	3,71	5,27	21,73	,33	" 26	14,13	19,58	11,06	,84	45,59
14,55	3,70	5,03	20,80	,36	Oct. 3	15,09	19,63	8,99	,73	44,44
14,55	3,08	5,04	21,18	,36	" 10	15,72	19,06	8,76	,67	44,21
14,55	3,09	5,15	20,63	,35	" 17	15,72	18,57	8,62	,86	43,77
14,55	3,10	3,94	21,80	,33	" 24	15,14	18,58	9,30	,70	43,72
14,55	3,08	4,08	21,40	,32	" 31	15,12	18,63	8,88	,80	43,43
14,55	3,09	3,72	20,60	,43	Nov. 7	14,50	18,26	8,82	,81	42,39
14,55	3,10	3,42	20,53	,33	" 14	14,10	17,83	9,14	,86	41,93
14,55	3,11	3,66	19,99	,33	" 21	13,58	17,41	9,64	1,01	41,64
14,55	3,07	3,86	20,38	,31	" 28	13,58	17,05	10,65	,69	42,17
14,55	3,06	4,66	19,63	,36	Dec. 5	13,18	17,47	10,84	,77	42,26
14,55	3,06	5,28	20,38	,30	" 12	13,29	17,90	11,65	,88	43,67
14,55	3,07	5,70	20,36	,30	" 19	13,34	17,97	11,77	,90	43,98
14,55	3,07	5,94	20,18	,31	" 26	13,38	18,44	11,43	,80	44,05

LONDON CLEARING; CIRCULATION, PRIVATE AND PROVINCIAL.

The London Clearing, and the Average Amount of Promissory Notes in Circulation in ENGLAND and WALES on Saturday in each Week during the Year 1877; and in SCOTLAND and IRELAND, at the Dates, as under.

[0,000's omitted.]

ENGLAND AND WALES.					SCOTLAND.				IRELAND.		
DATES.	London: Cleared in each Week ended Wednesday.*	Private Banks. (Fixed Issues, 3,81).	Joint Stock Banks. (Fixed Issues, 3,59).	TOTAL. (Fixed Issues, 6,40).	Weeks ended	£5 and upwards.	Under £5.	TOTAL. (Fixed Issues, 3,75).	£5 and upwards	Under £5.	TOTAL. (Fixed Issues, 6,35).
1877.	£	£	£	£	1877.	£	£	£	£	£	£
Jan. 6.....	113.33	2.47	2.19	4.66	Jan. 30...	2.16	4.03	6.17	4.06	3.39	7.45
" 13.....	96.20	2.60	2.33	4.73							
" 20.....	106.15	2.47	2.31	4.68							
" 27.....	91.07	2.44	2.18	4.62							
Feb. 3.....	103.79	2.42	2.18	4.60	Feb. 17...	2.01	3.81	5.82	4.10	3.31	7.41
" 10.....	102.49	2.39	2.19	4.58							
" 17.....	95.47	2.33	2.16	4.49							
" 24.....	92.79	2.33	2.16	4.48							
Mar. 3.....	102.24	2.33	2.16	4.48	Mar. 17...	1.96	3.78	5.73	4.13	3.21	7.33
" 10.....	105.93	2.32	2.18	4.50							
" 17.....	102.27	2.32	2.18	4.50							
" 24.....	89.28	2.36	2.23	4.59							
" 31.....	101.31	2.43	2.29	4.72							
April 7.....	78.15	2.61	2.33	4.84	April 14...	1.96	3.84	5.80	4.26	3.24	7.49
" 14.....	97.20	2.61	2.32	4.83							
" 21.....	112.73	2.49	2.32	4.81							
" 28.....	78.97	2.48	2.33	4.81							
May 5.....	110.46	2.47	2.33	4.80	May 12...	2.11	3.94	6.05	4.33	3.20	7.52
" 12.....	95.48	2.46	2.29	4.75							
" 19.....	108.97	2.44	2.29	4.73							
" 26.....	84.04	2.40	2.23	4.63							
June 2.....	79.81	2.34	2.18	4.52	June 9...	2.54	4.33	6.87	4.16	3.11	7.27
" 9.....	106.77	2.31	2.14	4.45							
" 16.....	84.09	2.38†	2.12	4.40							
" 23.....	106.13	2.27	2.12	4.39							
" 30.....	81.80	2.26	2.14	4.39							
July 7.....	125.78	2.31	2.17	4.48	July 7...	2.13	4.04	6.17	4.06	3.01	7.07
" 14.....	96.78	2.33‡	2.18	4.50							
" 21.....	115.46	2.29	2.16	4.44							
" 28.....	81.95	2.38	2.12	4.50							
Aug. 4.....	102.90	2.26	2.12	4.38	Aug. 4...	2.04	3.97	6.01	4.06	3.01	7.07
" 11.....	85.56	2.25	2.12	4.37							
" 18.....	97.91	2.23	2.11	4.34							
" 25.....	84.05	2.19	2.10	4.29							
Sept. 1.....	80.73	2.19	2.10	4.29	Sept. 1...	1.98	3.90	5.88	3.97	2.99	6.96
" 8.....	116.39	2.21	2.11	4.32							
" 15.....	77.87	2.25	2.12	4.37							
" 22.....	99.58	2.28	2.16	4.43							
" 29.....	71.52	2.26	2.19	4.54	" 29...	2.01	3.96	5.97	4.14	3.00	7.23
Oct. 6.....	109.40	2.48	2.28	4.76	Oct. 28...	2.03	4.06	6.07	4.51	3.45	7.96
" 13.....	93.18	2.64	2.30	4.84							
" 20.....	115.36	2.49	2.23	4.71							
" 27.....	84.48	2.62	2.27	4.79							
Nov. 3.....	102.60	2.47	2.23	4.70	Nov. 24...	2.28	4.27	6.75	4.45	3.46	7.91
" 10.....	94.89	2.45	2.25	4.70							
" 17.....	102.58	2.42	2.22	4.64							
" 24.....	97.34	2.28	2.18	4.56							
Dec. 1.....	81.39	2.26	2.17	4.53	Dec. 22...	2.20	4.20	6.40	4.16	3.23	7.49
" 8.....	109.93	2.23	2.14	4.47							
" 15.....	100.07	2.20	2.11	4.41							
" 22.....	94.22	2.29	2.12	4.41							
" 29.....	68.37	2.29	2.11	4.40							

* The Wednesdays preceding the Saturdays.

† Fixed Issues, 3,76.

‡ Fixed Issues, 3,72.

FOREIGN EXCHANGES.—*Quotations as under, LONDON on Paris, Hamburg and Calcutta;—and New York, Calcutta, Hong Kong, and Sydney, on LONDON.*

1 DATES.	2 London on Paris. 3 m. d.	3 London on Hamburg. 3 m. d.	4 New York. 60 d. a.	5 6 Calcutta.		7 Hong Kong. 6 m. d.	8 Sydney. 30 d. s.	9 Standard Silver in Bars in London. pr. oz.
				Indian Council Demand Bills and Telegraphic Transfers. d.	Calcutta on London Bank Bills. d.			
1877.			Per cent.	d.	d.	d.	Per cent.	d.
Jan. 6	25·37½	20·63	4·84½	22	22¼*	51½	—	57½
„ 20	25·30	20·60	4·83½	22½	22½	51½	1 pm.	58
Feb. 3 ...	25·32½	20·62	4·85	22	22½	51½	—	57½
„ 17	25·35	20·62	4·84½	22	22½	51	1 pm.	—
Mar. 3	25·32½	20·62	4·83½	21½	22	—	—	56½
„ 17	25·35	20·62	4·84½	20½	21	48½	1 pm.	55
April 7	25·35	20·63	4·85½	20½	20½	47½	—	53½
„ 14	25·35	20·65	4·86½	20½	21½	47½	—	54½
May 5	25·32½	20·69	4·86	21½	21½	—	—	53½
„ 19	25·37½	20·71	4·87½	21	21½	48½	—	54½
June 2	—	—	4·88	20½	20½	—	—	53½
„ 16	25·37½	20·68	4·88	20½	20½	48½	—	53½
July 7	25·35	20·67	4·88	20½	21	48½	—	53½
„ 21	25·32½	20·60	4·86	20½	21½	—	—	54½
Aug. 4	25·30	20·62	4·86	20½	21½	47	—	54½
„ 18	25·32½	20·62	4·84	20½	21½	47½	—	54½
Sept. 1	25·32½	20·65	4·83	20½	21½	47½	1½ pm.	54½
„ 15	25·37½	20·71	4·83½	20½	21½	46½	—	54½
Oct. 5	25·35	20·74	4·82	India Council Drawings sus- pended	21½	48	1½ pm.	55½
„ 19	25·42½	20·76	4·81		21½	47½	—	54½
Nov. 2 ...	25·37½	20·72	4·81		21½	47½	—	55
„ 16	„	20·73	4·80½		21½	47	—	54½
Dec. 7 ...	25·35	20·68	4·81½	20½	21½	47½	—	54½
„ 21 .	25·37½	20·67	4·83	20½	21½	47½	—	54

Note.—The dates for council bills are only approximate. The issues are made weekly now, and at dates which do not exactly correspond with the above.

* These rates are for the nearest approximate dates.

VII.—*Additions to the Library during the Quarter ended 30th June, 1878.*

Donations.	By whom Presented.
AUSTRIA AND HUNGARY—	
Statistisches Jahrbuch für 1875. Hefte 2 und 10. 47 und 48 pp., 8vo. Wien, 1878	K. K. Statistischen Central-Commission Kön. Ung. Statistisches Bureau The Editor
Statistisches Jahrbuch für Ungarn. 5er Jahrgang, 1875. Hefte 1, 2, 7 und 8. 4to. Budapest	
Statistique Internationale des Grandes Villes, 2 ^e Section, Statistique des Finances. Vol. i. Edited by J. Körösi. 352 pp., cloth, 4to. Budapest, 1877	
BAVARIA. Definitive Ergebnisse der Gewerbezahlung, vom 1 December, 1875. 107 pp., 8vo	Koenigl. Bayrn, Statistisches Bureau
BELGIUM—	
Annuaire Statistique de la Belgique. 8 ^e année, 1877. 363 pp., map and diagram, 8vo. Bruxelles, 1878	The Minister of the Interior M. le Dr. E. Janssens
Brussels, Annuaire de la mortalité de la ville de, par le Dr. E. Janssens. 16 ^e année. 1877. 64 pp., diagrams, &c., 8vo. Bruxelles, 1878	
DENMARK—	
Résumé des principaux faits statistiques du Danemark. No. 2. 81 pp., stiff paper, 8vo. Copenhagen, 1878	Le Bureau de Statistique " "
Statistisk Tabelværk, 3 ^{de} Række, 32 ^{de} Bind. Hartkornets Fordeling i kongeriget Danmark den 1 ^{ste} April, 1878. lxxvii and 408 pp., map, 4to. Kjøbenhavn, 1877	
Statistisk Tabelværk, 3 ^{de} Række, 33 ^{de} Bind, Tabeller over kongeriget Danmarks vare-indførsel og udførsel samt skibsfart og brændevins-produktion, M.M., 1876. xliii and 203 pp., 4to. Kjøbenhavn, 1877	
FRANCE—	
L'Economiste Français. Current numbers.....	The Editor W. Newmarch, Esq., F.R.S. The Editor
Journal des Economistes, 1849-52, and 1864-66. 11 vols. Half-calf, roy. 8vo. Paris.....	
Revue Bibliographique Universelle.	
Partie Littéraire. Vol. xxii, Nos. 3—5.	La Société
Partie Technique. Vol. xxiv. Nos. 2—4.	
Société de Statistique de Paris, Journal de la. Vol. xix. Nos. 4—6	
GERMANY—	
Berlin—Die Bevölkerungs-Gewerbe und Wohnungs-Aufnahme von 1875 in der Stadt Berlin. Erstes Heft. 197 pp., map, folio. Berlin, 1878	Statistisches Bureau der Stadt Berlin "
Berlin—Statistisches Jahrbuch der Stadt Berlin, 4 ^{er} Jahrgang. 229 pp., boards, 8vo. Berlin, 1878....	
Monatshefte zur Statistik des Deutschen Reichs. Band xxx, Hefte 2 and 3, 4to. Berlin, 1878	Kaiserlichen Statistischen Amt. Berlin
Frankfurt-am-Main, Beiträge zur Statistik der Stadt. Band iii, Heft 2, 4to. Frankfurt-am-Main, 1877	Frankfurter Verein für Geographie und Statistik "
Frankfurt-am-Main, Statistische Mittheilungen über den Civilstand, der Stadt Frankfurt-am-Main im Jahre 1877. 19 pp., 4to. Frankfurt-am-Main, 1878	

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HAMBURG. Neues Hamburger Handels-Archiv. Jahrgang 1877. 176 pp., 8vo. Hamburg, 1878	Chamber of Commerce, Hamburg
ITALY—	
Annali del Ministero di Agricoltura, Industria e Commercio, anno 1877. Secondo Semestre, No. 100. Statistica. (2 copies.) 208 pp. Maps and Diagrams, 8vo. Roma	Ministero dell' Interno
Atti Parlamentari, sessione del 1876-77. Camera dei Deputati. No. 145. Mantenimento dei fanciulli illegittimi ed abbandonati	"
No. 149. Disposizioni intorno ai Manicomii e ai Mentecatti	"
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Bollettino Settimanale dei Prezzi di Alcuni dei principali Prodotti Agrari. Current numbers. Imp. 8vo. Roma	"
Bollettino mensile delle Situazioni dei Conti degli istituti d'emissione. Anno ix, Nos. 1—4. Imp. 8vo. Roma	"
Bollettino Bimestrale del Risparmio. Anno 2, No. 6, and Anno 3, No. 1. Imp. 8vo. Roma	"
Bollettino Bimestrale delle Situazioni dei Conti. Anno 8, No. 6, and Anno 9, No. 1. Imp. 8vo. Roma	"
Bilanci Comunali, 1875-76, Introduzione. 99 pp., imp. 8vo. Roma, 1877. 2 copies	"
Statistica dei Bilanci Provinciali, 1875-76, Introduzione. 19 pp., imp., 8vo. Roma, 1877. 2 copies	"
I Trattati di Commercio e la Liguria; voti dei deputati liguri esposti dall' on. Paolo Boselli. 169 pp. Imp. 8vo. Genova, 1878	"
Statistica del Commercio Speciale di Importazione e di Esportazione dal 1° Gennaio a tutto Marzo, 1878. 26 pp. Folio. Roma, 1878	"
Sull' obbligo della Istruzione Elementare nel Regno D'Italia, Attuazione della legge 15 luglio 1877. 423 pp., 8vo. Roma, 1878	"
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Philadelphia, Academy of Natural Sciences, Proceedings of the. Parts 1, 2, and 3, January–December, 1877. 8vo.	The Academy
Philadelphia, Franklin Institute, Journal of the. Nos. 3–6 of vol. lxxv.....	The Institute
Rhode Island, City of Providence, Population of the. January 1, 1878. 12 pp., 8vo. Providence, 1878....	E. M. Snow, Esq., M.D., City Registrar
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Economic Monographs, No. 1. Why We Trade and How We Trade. 67 pp., 12mo. New York, 1878....	The Author
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TASMANIA, Report of the Royal Society of, for 1876. 172 pp., 8vo. Hobart Town, 1877	The Society
VICTORIA—	
Australasian Statistics for 1876, with Introductory Report. 18 pp., folio. Melbourne	The Agent-General for Victoria
Statistical Register of the Colony of, for 1876 :—	
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Quarterly Return of the Births, Deaths, and Marriages in, for the Quarter ending 31st March, 1878, No. 93. 51 pp., 8vo. Edinburgh, 1878. 4 copies.....	"
Glasgow. Mortality Tables of, for Quarter ending 31st December, 1877, with Remarks by Medical Officer. 17 pp., 8vo. Glasgow, 1878	J. B. Russell, Esq.
Glasgow. Report on Outbreak of Enteric Fever in, with Memorandum on the Milk Supply of, by Jas. B. Russell, M.D. 23 pp., 8vo. Glasgow, 1878	"
RUSSELL (J. B.). On the Comparative Prevalence of Filth-Diseases in Town and Country. 27 pp., diagrams, 8vo. Glasgow, 1877	"

Donations—Contd.

Donations.	By whom Presented.
ENGLAND AND WALES—	
Bristol Incorporated Chamber of Commerce and Shipping. Report of the Council and Proceedings at the Annual Meeting, 1878, with Appendix. 80 and 10 pp., 8vo. Bristol, 1878.....	L. Bruton, Esq., F.S.S.
Colonial and other Possessions. Statistical Tables relating to. Part xv, 1871-75. [C-2029.] xii and 629 pp., folio	The Board of Trade
Trade and Navigation, Monthly Returns of. Current numbers	"
United Kingdom. Annual Statement of the Navigation and Shipping for 1877. [C-1999.] 329 pp., folio. London, 1878	"
Factories, Reports of the Inspectors of, for the Half-year ending 31st October, 1877. [C-2001.] 78 pp., 8vo.....	Alex. Redgrave, Esq.
Local Government Board. Supplement to the Sixth Annual Report for 1876. [C-1909.] 320 pp., plates, photographs, &c., 8vo. London, 1878.....	E. Sutton, Esq., Local Government Board
England. Quarterly Return of Marriages to 31st December, 1877; Births and Deaths to 31st March, 1878. 16 and 75 pp., 8vo. London	The Registrar-General.
England and Wales. Summary of the Failures in, during the eleven years and three months ending 31st March, 1878, from "Kemp's Mercantile Gazette." 4 pp., diagram sheet, 4to. London, 1878	Messrs. Kemp and Co.
The Colonial Office List for 1878. Compiled by Edward Fairfield. 409 pp., cloth, maps, 8vo. London, 1878	Messrs. Harrison and Sons, St. Martin's Lane
The Foreign Office List for 1878. Compiled by Edw. Hertalett, C.B. 311 pp., cloth, maps, 8vo. London, 1878	"
Colliery Income Tax Appeal. Knowles and others v. McAdam. 80 pp., 12mo. London	Messrs. Chadwicks, Collier, and Co.
GALTON (DOUGLAS). An Address on the Construction of Hospitals, with Discussion thereon. 95 pp., cloth, plans, 12mo. London, 1869	A Fellow of the Society
Several Reports of Hospitals, Infirmarys, Prisons, &c.....	
WALFORD (C.). The Insurance Cyclopædia, vol. iv. 616 pp., cloth, roy. 8vo. London, 1876	Messrs. C. and E. Layton
Actuaries, Institute of, Journal of the. Vol. xx, Part vi, January, 1878, No. cx, 8vo. London	The Institute
Civil Engineers. Minutes of Proceedings of the Institution of. Vol. li, Session 1877-78, part 1, 417 pp., cloth, plates, 8vo. London, 1878.....	The Institution
East India Association, Journal of the. Vol. xi, No. 2. April, 1878. 8vo. London, 1878	The Association
Geographical Society (Royal), Proceedings of the. Vol. xxii, Nos. 2 and 3	The Society
Medical and Chirurgical Society (Royal), Proceedings of the. Vol. viii, No. 5	"

JOURNAL OF THE STATISTICAL SOCIETY,**SEPTEMBER, 1878.**

REPORT of the COUNCIL for the FINANCIAL YEAR ended 31st December, 1877, and for the SESSIONAL YEAR ended 25th June, 1878, presented at the FORTY-FOURTH ANNIVERSARY MEETING of the STATISTICAL SOCIETY, held at the Society's Rooms, King's College Entrance, Strand, London, on the 25th of June, 1878, and of the PROCEEDINGS at the Meeting.

The President, G. J. SHAW-LEFEVRE, Esq., M.P., in the Chair.

THE circular convening the meeting having been read, the minutes of the last ordinary meeting were read and confirmed.

The following report was then read:—

Report of the Council.

The Society is now in the forty-fourth year of its existence, and fully maintains the position it has obtained as respects the number of its members, and its power to fulfil the objects for which it was established.

In the past year the changes in the *personnel* of the Society show a considerable increase on balance, the numbers having risen in one year from 611 to 683. The result compares as follows with the average of the previous ten years:—

Particulars.	1877.	Average during the Last Ten Years.
Number of Fellows on 31st December	683	478
Life Members included in the above	101	72
Number lost by death, withdrawal or default	40	27
New Fellows elected (and one resignation cancelled)	112	51

Since the close of the year a still more favourable account could have been presented, seventy new members having been elected since the 1st January last.

The financial condition of the Society also shows highly satisfactory progress. The receipts from all sources have been 1,597*l.*, as compared with 1,438*l.* the previous year, although that year showed a great improvement on its predecessors. The investments of the Society are also 2,000*l.*, as compared with 1,471*l.* a year ago. The following is a comparison of certain particulars for last year, with the average of the previous ten years:—

Particulars.	1877.	Average of Last Ten Years.
	£	£
Balance at beginning of year	192	240
Receipts from all sources	1,597	1,058
Cash balance at end of year.....	312	240
Surplus of assets over liabilities	3,562	2,231

The resources of the Society have thus increased during the year, and the improvement has continued up to the present time. A year ago it was stated in the annual report, that the Society might be considered to have almost entirely got over the temporary drain upon its funds, caused by the removal to the present premises. This statement may now be repeated, with the omission of the word "almost." Financially, the Society has never been in a better position than it is now. A comparison of the principal figures at intervals of ten years from the formation of the Society, will show the progress that has been made:—

Comparison of Condition of Society at Intervals of Ten Years.

Year.	Number of Fellows.	Income.	Expenditure.	Amount Invested.	Liabilities.	Cash Balance.
		£	£	£	£	£
1837	399	738	768	899	11	34
'47	412	756	828	899	255	43
'57	394	869	755	899	122	169
'67	371	778	831	1,043	97	146
'77	683	1,597	1,286	1,471	201	312

The inaugural address of the President was given on the re-assembling of the Society in November, and the papers read and the members elected at each of the monthly meetings are recorded as follows:—

SESSION 1877-78.

First Ordinary Meeting, Tuesday, 20th November, 1877.

The President, G. J. SHAW-LEFEVRE, Esq., M.P., in the Chair.

The following were elected Fellows:—

J. Wright Collins.	Richard Sandon Gutteridge, M.D.
Robert Hugh Soley.	J. Jackson Gawith, M.R.C.S.
Samuel Spalding.	William Thomas Greene, M.A., M.D.
Samuel Wood, F.R.C.S., J.P.	Robert Nicholas Fowler.
John Richard Somers Vine.	Alexander Burrell.
W. T. Emmott.	John Walter Phillips, M.B.
Harvey Edward Preen.	Captain George Alfred Raikes.
Captain Edward Walter.	Joseph Thomas Mitchell, M.R.C.S.
Henry Lawrance.	Arthur Ellis.
Thomas Ligertwood, M.D.	William Herbage.
Charles Harding, F.R.G.S.	

(a) The President delivered his Inaugural Address.

(b) Dr. Mouat read his second and final Report on "The Ninth International Statistical Congress held at Buda-Pesth in September, 1876."

Second Ordinary Meeting, Tuesday, 18th December, 1877.

DR. W. A. GUY, F.R.S., Honorary Vice-President, in the Chair.

The following were elected Fellows:—

Maximilian Prachkauer.	Charles Edward Saunders, M.D.
Edward Golledge Pitt, M.D.	Charles Henry Nevill.
William B. Barbour.	George Lamb Campbell.
Gen. Sir Henry Wylie Norman, K.C.B.	Sir Nathaniel Alexander Staples, Bart.
James Startin, M.R.C.S.	Robert Carlyle Child.

Mr. Ernest Seyd exhibited numerous Diagrams illustrating the Accounts of the Banks of England, France, Germany, Austria, Holland, Belgium, Italy, and Russia, and read his remarks thereon.

Third Ordinary Meeting, Tuesday, 15th January, 1878.

The President, G. J. SHAW-LEFEVRE, Esq., M.P., in the Chair.

The following were elected Fellows:—

Henry Belcher, M.R.C.S.	John C. Barr, L.R.C.P.
Patrick Doyle, C.E.	J. F. Kelsey.
E. C. Anderson, M.A., M.B.	A. B. Thompson, M.R.C.S.
J. C. Souther, M.D.	Captain C. H. Thompson.
William Woolley Turton.	Rev. R. D. Thomas.
A. J. Mundella, M.P.	Harry Maple.

Mr. Giffen read a Paper on "Recent Accumulations of Capital in the United Kingdom."

Fourth Ordinary Meeting, Tuesday, 19th February, 1878.

The President, G. J. SHAW-LEFEVRE, Esq., M.P., in the Chair.

The following were elected Fellows:—

Wynnard Hooper.	Herbert John Crickmay.
Thomas K. Stubbins.	Arthur J. Scott.
A. Orlando Jones, M.D.	W. P. Harper.
William Henry Duignan.	Thomas Henry Farrer.
Theodore Notthafft.	William Rathbone, M.P.
Thomas Lloyd.	

Mr. A. J. Mundella, M.P., read a Paper on "What are the Conditions on which the Commercial and Manufacturing Supremacy of Great Britain depend, and is there any reason to think they have been or may be endangered?"

The discussion on Mr. Mundella's Paper was continued at an adjourned meeting held on the 5th March, 1878.

Fifth Ordinary Meeting, Tuesday, 19th March, 1878.

FREDERICK PURDY, Esq., Vice-President, in the Chair.

The following were elected Fellows:—

J. Murray Kennedy.	A. J. Balfour, M.P.
H. S. Foxwell.	G. C. Rumley.
R. K. Casley, M.D.	E. R. King-Harman, M.P.
Yoskio Kusaka (Japanese Student).	James Wharton.
Rt. Hon. The Earl Beauchamp.	Alexander H. Brown, M.P.
Thomas Eykyn.	

Mr. C. Walford read a Paper on "The Famines of the World, Past and Present."

Sixth Ordinary Meeting, Tuesday, 16th April, 1878.

The President, G. J. SHAW-LEFEVRE, Esq., M.P., in the Chair.

The following were elected Fellows:—

Right Hon. Hugh Law, M.P.	Sir Andrew Lusk, Bart., M.P.
Pickering Phipps, M.P.	J. S. Nicholson.
Hugh Brown Mair.	S. Goring Glanville.
J. Lawrence-Hamilton, M.D.	Right Hon. The Earl of Dunraven.
Sir Charles H. Mills, Bart., M.P.	Captain J. C. R. Colomb, J.P.
R. A. Manuel.	Right Hon. The Lord O'Hagan.
Charles Henry Meldon, M.P.	Edward J. Watherston.
Rt. Hon. The Earl of Northbrook.	A. F. Anderson.

Mr. Hyde Clarke read a Paper "On the Debts of Sovereign and Quasi-Sovereign States."

Seventh Ordinary Meeting, Tuesday, 21st May, 1878.

The President, G. J. SHAW-LEFEVRE, Esq., M.P., in the Chair.

The following were elected Fellows:—

John Hughes.	James Stephen Jeans.
John Whitwell, Esq., M.P.	Frederick Morley Hill,
E. Johnstone.	Rev. J. N. Worsfold, M.A.
The Right Hon. The Lord Bellew.	George Richards, L.R.C.P.
John Newton.	

Mr. Newmarch, F.R.S., read a Paper on “The Progress of the Foreign Trade of the United Kingdom since 1856, with Especial Reference to the Effects produced upon it by the Protectionist Tariffs of other Countries.”

The discussion on Mr. Newmarch's Paper was adjourned to the next ordinary meeting.

Eighth Ordinary Meeting, Tuesday, 18th June, 1878.

FREDERICK PURDY, Esq., Vice-President, in the Chair.

The following were elected Fellows:—

David Paulin.	Henry J. Gardiner.
William Wilcox, L.R.C.P., M.R.C.S.	Charles John Follett.
Francis Wilton, M.R.C.S.	J. B. Gunning Moore.
David Francis Park, C.A., F.F.A.	G. H. Simmonds.
Richard F. Russell.	Dr. George Smith.
Adam Murray.	

Mr. James Heywood, F.R.S., read a Paper on “The Owens College, Manchester, and a Northern University;” after which the discussion on Mr. Newmarch's Paper—adjourned from last meeting—was resumed.

The above list shows of itself the nature of the subjects with which the Society has been occupied during the present session. It may be remarked that there is perhaps an unusual preponderance of subjects belonging to economic science, while vital statistics and other branches of statistical knowledge have occupied a smaller place. This peculiarity is noticed, not as a subject for regret or the reverse, but simply by way of description of what the Society has actually done. There must necessarily be considerable variations in the direction of the labours of such a Society from year to year, while it is preferable to take good papers which are offered, and can be conveniently arranged, rather than insist on having certain subjects treated without respect to the merits of the papers themselves. It would appear, however, although it is no excuse for neglecting in future other branches of statistics, that the actual

direction of the Society's efforts during the past session has met with general acceptance. The meetings have been well attended; the papers and discussions have attracted a good deal of notice and criticism in the press; and in some degree the increased membership and the improvement in the financial position of the Society are the results. The economic subjects specially discussed have been those which were engaging a great deal of attention at the time, principally the causes of the present depression of trade and the explanations to be given of, or inferences drawn from, the excess of imports over exports; and the papers read and discussions held by this Society, it is believed, contain a mass of well-digested information on these topics which will be useful for reference in all future discussions.

But in no way, it should be remembered, has the past session been exceptional. The statements already made as to the progress of the Society in numbers and financial strength from the commencement have shown a regular improvement from period to period. If additional confirmation were needed, it may be found in the record of the sales of the Society's *Journal* from the commencement. The Secretaries have had a statement of these sales prepared for them, and it shows that the average annual sales—

	£
In the ten years 1841-50, were.....	56
„ '51-60, „	83
„ '61-70, „	97
In the seven years '71-77, „	144

An examination of the figures for particular years shows that there was at times some retrogression and irregularity down to 1858, although an actual improvement in each decade, but since 1858, with the single exception of 1864, there has been an improvement with little variation from year to year. In particular, it may be noticed, the sales of the last two years have been much in excess of the average of the last seven, and although the figures for 1876 and 1877 are not so high as for one previous year in the period, viz., for 1873, when the sum of 167*l.* was realised, they are higher than for any other years. The following are the amounts for each year:—

	£
1871.....	115
'72.....	141
'73.....	167
'74.....	140
'75.....	133
'76.....	159
'77.....	151

That the sales should improve in this way, notwithstanding the

constant and large additions to the Society's membership, that is, to the numbers of these who receive the *Journal* gratuitously, is believed to be a good proof of the increasing acceptance of the Society's work among the public. The sales, of course, comprise only one or two of the papers of the session just passed, so that the success of the Society during that session is not an exceptional circumstance, but only a continuation of a long course of prosperity.

The Society has had to lament the death of the following members since the last anniversary meeting :—

John Heywood Hawkins, M.A., F.R.S.

Arthur Symonds.

John Fitzwilliam Whall, M.A.

John A. Bremner.

Jacob Abraham Franklin.

Hillary Nicholas Nissen, J.P.

George Moffatt, F.R.G.S.

Sir F. H. Goldsmid, Bart., M.P., Q.C.

Arthur Roberts Adams, D.C.L.

William Golden Lumley, Q.C.

The Right Hon. The Earl Russell, K.G., G.C.M.G.

Of the names in this list the last two call for special mention. Earl Russell filled the office of President, and to the day of his death remained a Vice-President in fact, as well as in name, though for many years he was unable to attend the meetings. Without being specially identified with the work of the Society, his appreciation of its objects was most cordial, while he has no doubt by his public labours rendered great services to the common cause. Mr. Lumley we must lament specially, as for many years one of our most able and indefatigable members, constant in attendance both in ordinary and council meetings, a frequent speaker, though never speaking without fulness of knowledge and carefully matured views, and a wise councillor in all the business of the Society. That he spared so much time for the Society from his official duties was a conspicuous merit, and of good example to others in a similar position. By direction of the Council, special letters of condolence have been addressed by the Secretaries to Lady Russell and to the widow and family of Mr. Lumley.

The following list of Fellows proposed as Officers and Council of the Society for the Session 1878-79, is submitted for the consideration of the meeting :—

COUNCIL AND OFFICERS FOR 1878-79.**PRESIDENT.****GEORGE J. SHAW-LEFEVRE, ESQ., M.P.****COUNCIL.**

Major-General H. P. Babbage.*	Prof. W.S. Jevons, M.A., LL.D., F.R.S.
Arthur H. Bailey, F.I.A.*	Francis Jourdan.
Dr. T. G. Balfour, F.R.S.*	Professor Leone Levi, LL.D.
Stephen Bourne.	Richard Biddulph Martin, M.A.
Edward William Brabrook, F.S.A.	Frederic John Mouat, M.D.
Hammond Chubb, B.A.	A. J. Mundella, Esq., M.P.*
Hyde Clarke.	F. G. P. Neison.*
Captain P. G. Craigie.*	Robert Hogarth Patterson.
Juland Danvers.	Frederick Purdy.
Francis Galton, F.R.S.	Ernest George Ravenstein, F.R.G.S.
Robert Giffen.	Sir R. W. Rawson, C.B., K.C.M.G.
Archibald Hamilton, J.P.	Ernest Seyd.
James Thomas Hammick.	William Tayler, D.L., F.S.A.
Frederick Hendriks.	Cornelius Walford, F.S.A.
Henry Jeula, F.R.G.S.	Thomas Abercrombie Welton.

Those marked * are new Members of Council.

TREASURER,**Richard Biddulph Martin, M.A.****SECRETARIES.**

Hammond Chubb, B.A. | Robert Giffen.
Professor William Stanley Jevons, M.A., LL.D., F.R.S.

FOREIGN SECRETARY.**Frederic J. Mouat, M.D.**

The abstract of receipts and expenditure, and the balance sheet of assets and liabilities to the 31st of December, 1877, are subjoined, together with the Auditors' report for the same year.

(I.)—ABSTRACT of RECEIPTS and PAYMENTS, YEAR ended 31st DECEMBER, 1877.

RECEIPTS.		PAYMENTS.	
	£ s. d.		£ s. d.
Balance in		Rent	100 - -
Bank, 31st Dec., 1876 } 246 11 4		Salaries, Wages, and Pension	322 19 8
Less drafts not presented ... } 60 - -		Journal, Printing	£442 5 6
	£186 11 4	" Shorthand Reporter.. } 21 - -	
Balance of Petty Cash. - - 6½		" Annual Index 5 5 -	
Balance of Advertisement Cash	5 7 5	" Literary Services } 5 10 8	
	191 19 3½	Advertising	474 - 9
Dividends on 1,471 <i>l</i> 4 <i>s</i> 8 <i>d</i> , New } 40 12 5		Ordinary Meeting Expenses	63 18 2
Subscriptions:—		Library	16 - -
24 Arrears	£50 8 -	Stationery and Sundry Printing ...	49 - -
496 for 1877	1,041 12 -	Postage, &c.	101 18 10
12 in Advance.....	25 4 -	Fire and Lights	65 11 7
	1,117 4 -	Incidental Expenses	18 17 8
Compositions (12)	252 - -	Furniture and Repairs	55 7 4½
Journal Sales	£151 8 1	Statistical Dinner Club Guests.....	15 - 8
Journal by Advertisements	85 8 9		8 5 -
	186 16 10	Purchase of 200 <i>l</i> . New 3 per Cents.	1,285 14 3½
	£1,788 12 6½	Balance at	190 15 -
		, Drummond's ..	£1,476 9 3½
		Less drafts not presented ... } 20 - -	
			£296 8 10
		Balance of Petty Cash 9 - 2	
		Balance of Advertisement Cash ... }	6 14 8
			812 8 8
			£1,788 12 6½

(II.)—BALANCE SHEET of ASSETS and LIABILITIES on 31st DECEMBER, 1877.

LIABILITIES.		ASSETS.	
	£ s. d.		£ s. d.
Accounts for—		Cash Balances	312 3 8
December number } 144 14 5		Stock:—	
of Journal		New 3 per Cent. Consols } 1,398 2 1	
Annual Index to ditto 5 5 -		(1,471 <i>l</i> 4 <i>s</i> 8 <i>d</i>), cost	
Stationery and } 28 8 7		Property (Estimated Value):—	
Printing		Books in Library	£1,000
Miscellaneous	22 8 5	Journals in Stock	500
	200 11 5	Furniture and Fixtures	500
Balance in favour of the Society ...	3,562 3 11		2,000 - -
	£3,762 15 4	Arrears of Subscriptions recoverable (say)	52 10 -
			£3,762 15 4

(III.)—BUILDING FUND (ESTABLISHED by COUNCIL, 10th July, 1873), on 31st Dec., 1878.

LIABILITIES.		ASSETS.	
	£ s. d.		£ s. d.
Donation from Sir F. Goldsmid ...	100 - -	Invested in the name of the Treasurer,	
" Sir Charles Dilke ...	20 - -	R. B. Martin:—	
Interest, per London and Westminster Bank	5 8 -	Metropolitan Consolidated Stock } 133 - 9	
Interest on Investments.....	7 12 9	(3½ per Cent.), 130 <i>l</i> . 7 <i>s</i> . 6 <i>d</i> ., cost }	
	£183 - 9		£133 - 9

"Auditors' Report, 1877.

"STATISTICAL SOCIETY,

"KING'S COLLEGE ENTRANCE,

"STRAND, W.C., LONDON,

"6th May, 1878.

"The Auditors appointed to examine the Accounts of the Society

"REPORT:—

"That they have carefully compared the Entries in the Books with the several *Vouchers* for the same, from the 1st January to the 31st December, 1877, and find them correct, showing the *Receipts* (including a Balance of 191*l.* 19*s.* 3½*d.* from 1876) to have been 1,788*l.* 12*s.* 6½*d.*, and the *Payments* (including a purchase of 200*l.* New Three per Cents) 1,476*l.* 9*s.* 3½*d.*, leaving a Balance in favour of the Society of 312*l.* 3*s.* 3*d.*, at 31st December, 1877.

"They have also had laid before them an estimate of the *Assets* and *Liabilities* of the Society, the *former* amounting to 3,762*l.* 15*s.* 4*d.*, and the *latter* to 200*l.* 11*s.* 5*d.*,—leaving a Balance in favour of the Society of 3,562*l.* 3*s.* 11*d.*

"The balance standing to the credit of the Building Fund at the end of the year 1877 was 133*l.* —*s.* 9*d.*,—invested in the name of R. B. Martin, Esq., Treasurer.

"They further find that at the end of the year 1876 the number of Fellows on the list was 611, which number was diminished in the course of the year to the extent of 40 by Deaths, Resignations, and Defaulters, and that 111 new Members were elected, and the resignation of one Fellow was cancelled, leaving on the list, on 31st December, 1877, 683 Fellows of the Society.

(Signed) "WILLIAM TAYLER, } *Auditors.*"
 "J. O. CHADWICK, }

The PRESIDENT said that in moving the adoption of the report he had very little to add to the full statements which had just been read. He thought the members would all be of opinion that the progress made by the Society during the last year had been most satisfactory, and they could only hope that in future years the same ratio of progress would be maintained. There had been added to the Society seventy-one new members over and above the ordinary average loss of members through death and withdrawal, and if that were maintained there could be no doubt that the numbers of the Society would gradually and considerably increase. In looking at the list of new members who had joined the Society they would be struck by their quality. He observed in the list the names of Lord Northbrook, Lord O'Hagan, Mr. Law, the late Attorney-General for Ireland, Lord Beauchamp, General Norman, and a considerable number of very distinguished gentlemen. He thought that the accession of members of that kind was the strongest possible testimony to the good work which the Society was doing. They had to regret the death of some distinguished members of the Society. The most distinguished of them was Lord Russell. He was President of the Society many years ago, and had always taken an interest in its proceedings, though of late years he had not been able to attend the meetings of the Society. They also had to regret the death of Mr. Lumley, who took an active share in the proceedings of the Society as a member of the Council, and, as stated in the report, very frequently spoke at the meetings, always with a very full knowledge of the subject. The report had pointed out the nature of the subjects for discussion at the meetings, and stated that those subjects had been more purely economical than of late years, and that no papers had been specially addressed to the subject of vital statistics. He thought, however, that members would be of opinion that the papers read this year were of value, not only individually but collectively. Taking them altogether they presented a very full statement of the commercial condition of the country. On the whole they were a very fair illustration of the use of the Society in ventilating and sifting those important questions which arose from time to time with regard to the commercial condition of this country. He begged to move "That the Report of the Council, the Abstract of Receipts and Payments, the Balance Sheet of Assets and Liabilities, and the Auditors' Report for 1877, be adopted, entered on the minutes, and printed in the *Journal*."

Dr. MOUAT said he had great pleasure in seconding the resolution. It was absolutely unnecessary for him to add a single word to what had been already said; the subject had been put before the members so fully that he was quite sure they would adopt the report unanimously.

The motion was unanimously adopted.

The PRESIDENT announced—that the proposal for an alteration in Rule 13 had been withdrawn; also—that the subject for the Howard Medal Essay in 1879 was "On the Improvements that

have taken place in the Education of Children and Young Persons during the Eighteenth and Nineteenth Centuries."

Mr. W. M. BEAUFORT and Professor LEONE LEVI having been appointed scrutineers, a ballot was taken, and the President announced that the gentlemen named in the printed list submitted to the meeting, had been unanimously elected as the Council and Officers of the Society for the ensuing year.

Mr. BOHN said it was his pleasing duty to move a vote of thanks in recognition of the services of their esteemed President (who, in the midst of his parliamentary duties, which had been somewhat severe of late, had served them so faithfully); of the council, including as it did many men whom they all so highly esteemed; and of the officers of the Society who always did their work so efficiently.

Mr. NEISON seconded the motion, and said he believed the members thoroughly appreciated the valuable services of the President, council, and officers of the Society during the past brilliant session.

The motion was unanimously adopted,

The PRESIDENT acknowledged the vote of thanks. He was glad that the efforts of the council had given satisfaction to the members, and trusted that they would give equal satisfaction in future.

Mr. TAYLER moved a vote of thanks to the President for his conduct in the chair. They were delighted to have so distinguished a member of the legislature in the chair, and hoped that his future career would be as successful as the past.

Professor LEONE LEVI, in seconding the motion, said they were fortunate in having as President a gentleman so thoroughly conversant with a large portion of the subjects which interested the Society. The President had mentioned that the members were indebted to Mr. Giffen, Mr. Newmarch, and Mr. Mundella for their papers; he should also have included his own exhaustive statement by which the work of the Society had been this year inaugurated. It was a most useful and instructive paper, and was on a par with the communications made by the president of any other scientific societies in the country. They were all greatly indebted to the President for his urbanity, and for his great attention to the work of the Society.

The motion was unanimously adopted.

The PRESIDENT, in acknowledging the vote of thanks, said that when he was asked to take the chair of the Society he knew very little about statistics. He had to educate himself as best he could during the two months between the time when he was asked to take office and the delivery of his opening address. He had since then attended most of the meetings and had learned a great deal; and he hoped in coming years to have the same advantage.

The DEPRESSION of TRADE. By G. J. SHAW-LEFEVRE, ESQ., M.P.

A Speech delivered at the Anniversary Dinner of the Statistical Society, 25th June, 1878.

[From the "Statist" of 6th July, 1878.]

"IN referring last week to the dinner of the Statistical Society, we expressed the opinion that it would be desirable to have Mr. Shaw-Lefevre's speech in proposing the toast of the evening preserved in a complete and authentic form. We have much pleasure in now laying before our readers a full report of the speech. Mr. Lefevre said:—

" 'Gentlemen,—In proposing to you the toast of the evening, namely, Prosperity to the Statistical Society, I do not think I can ask you to do more than hope that its progress in the future will be in the same ratio as in the last few years. The Society has been in existence for forty-three years, and during its early years was presided over by eminent statesmen, such as Lord Russell, whose death we recently deplored, and who retained an interest in the Society to the end of his life, Lord Derby, Mr. Gladstone, and others. Of late years it has not chosen its presidents from the same high rank of statesmen, but nevertheless its progress has never been more satisfactory. During the last six or seven years its members have doubled in number, its income more than doubled, and as its expenditure has not increased in the same ratio, it is gradually accumulating a fund which we hope will some day enable it to acquire a better habitation for its meeting and discussions. Of its work during the past year I can speak in the same confident tone. I doubt whether ever during its existence more valuable papers have been read before it, or more interesting discussions taken place. When I was asked a year ago to undertake the duties of president, I must own I was somewhat appalled on looking back at the forty volumes of its proceedings. It seemed to me that the annals of human progress must be well nigh complete; that our predecessors must have exhausted all the valuable seams in this mine of social science, and we should be reduced either to work inferior seams, where the metal could be extracted only by greater labour, or to work up the refuse heaps of those who have gone before us in the hopes of finding some grains of value which they had neglected. The experience, however, of the past year has dissipated this fear;

it has shown that there is not less need than ever for such a society. In fact as time progresses, fresh questions continually arise, even quicker than we can deal with them, which require the careful deliberations and the thrashing out which such a society can give before they are fit for dealing with in public. I doubt whether there has ever been a time of late years when more serious economic questions occupied the attention of the public—such questions as the causes of the depression of trade, which has been the subject of so much complaint, not only in this country, but in nearly every other part of the world; what, again, are the prospects of England maintaining her industrial and commercial supremacy. There are questions also affecting our principal products and industries, the production of coal, our cotton manufactures, questions such as the effect of the increased production of silver—all of which involve most difficult problems, and can only be solved by careful investigation of facts.

“ ‘During the past year the Society has devoted more than usual attention to such questions of the day, closely bearing upon political economy, and even pure politics, and we have had papers read upon them of unusual interest. Without wishing to depreciate the value of other papers, I must single out, as bearing upon these questions, four papers which have been read before the Society. The first, by Mr. Giffen, on Recent Accumulations of Capital; the next by Mr. Mundella, on the Causes of the Depression of Trade, and the question whether this country can maintain in the future its commercial superiority; the third, by Mr. Newmarch, on the Results of Free Trade, with special reference to the hostile tariffs of other countries; and the last, by Mr. Hyde Clarke, on the Debts Contracted of late years by Foreign Governments. Three of these papers were by gentlemen who are acknowledged to be among the most able statisticians in the country, and the other, Mr. Mundella, was a recruit from the House of Commons, who is gifted with greater eloquence than is usually combined with pure statistics, but who on this subject has special knowledge and experience. These papers were not merely of great individual interest, but collectively they threw a flood of light upon the present condition of this and other countries, and were eminently calculated to dissipate any fears as to the future of this country, and to destroy those fallacies which, like weeds in rainy weather, are apt to grow in periods of depression almost quicker than economists can extirpate them. Mr. Giffen, for instance, has shown, by an elaborate and most careful estimate of the wealth of this country as compared with what it was ten years ago, that its capital had been increasing at the rate of no less than 250 millions a-year. The increase is so great that I was disposed myself to think it

exaggerated, but my friend Mr. Newmarch, than whom there is no more careful statist, agrees with him, and is even prepared to say that it is below the mark.

“ ‘ One of the most interesting features of Mr. Giffen's paper was that where, for the first time I believe, he endeavoured to estimate the value of British investments in foreign securities. From a careful review of all the foreign loans, and of the railways and other securities in which British investments are made, he has come to the conclusion that without counting trade profits abroad, the income of Englishmen from foreign and colonial investments amounts to not less than 65 millions a-year, a sum about the same as the net rental of all the lands of the United Kingdom. Of this sum not more than 29 millions is accounted for in the income tax returns. Comparing this with ten years ago, he estimates that the average investments made in such securities during the past ten years has not been less than at the rate of 80 millions a-year. I shall presently revert to the importance of this fact in explanation of another most interesting subject.

“ ‘ Mr. Mundella, in the paper to which I have also referred, showed by a number of facts collated from every part of the world, that the depression of trade, of which so much complaint has been made, has been far greater in other countries even than in this. He showed that thousands of workmen have been out of work in the United States, that hundreds of miles of railways have been sold up by their creditors, and that there has been widespread distress and ruin; he also showed that in Germany, Belgium, and many other centres of trade in Europe there have been similar complaints of trade. Then again, with reference to the future, he showed that all the main conditions on which the commercial superiority of this country has been founded remain the same, that its coal is still plentiful and cheap, that the efficiency of its labourers is still superior to that of most other countries, that it has great advantages in its geographical position, its colonial empire, its enormous mercantile marine, its abundance of capital, and not least in its sound and stable political and commercial system, which have enabled us to pass through the recent depression with much less suffering than has been felt elsewhere; and that there is no reason to fear that in the future we may not retain our superiority.

“ ‘ Lastly, Mr. Newmarch recalled our attention to the principles which were laid down by Sir Robert Peel on the introduction of the Free Trade policy. He quoted from the great speech of that statesman in 1846, in which he stated that his Government had adopted the new policy, “ wearied by long and unavailing efforts to induce other Powers to enter into commercial treaties, and convinced at last that it was foolish to continue to do ourselves an

injury because other Powers would not join in relieving themselves of the same mischief, and that he proposed a great remission of duties, in the full knowledge that nothing was to be immediately expected in the way of reciprocity from other countries." Again, he referred to an almost greater speech which Sir Robert Peel made in 1849, in answer to an attack made upon him by the present prime minister on this very question of reciprocity, in which he contested the assumption that we could not fight hostile tariffs by free imports, and maintained that the best way to compete with hostile tariffs was to encourage free imports; and Mr. Newmarch then proceeded to show by a series of tables, which are worthy of most careful study, what has been the effect of thus encouraging free imports even under the weight of hostile tariffs. I will not now refer to the figures showing the enormous increase of trade since then. Mr. Newmarch very wisely and philosophically admits that this great increase is not wholly due to free trade, but to other causes common to other countries as well as our own; but he shows conclusively, I think, that this increase is much greater than it would have been if we had not had free trade, and that the increase of other countries would have been vastly greater if they had adopted free trade.

In the course of his paper Mr. Newmarch dealt with a question which has given rise to great discussion of late, and which by some has been considered a most serious matter to our commercial position; I mean the great and growing difference between the value of the imports and exports of this country. I think the credit is due to Mr. Bourne, a valued member of our Society, for having first called attention to this phenomenon in a paper which he read last year. He showed that the excess in the declared value of our imports over our exports, which had remained about the same for each of the ten years 1862-72, about 50 to 60 millions, has of late years assumed very great proportions, and that while since 1878 our exports have been diminishing somewhat in value, our imports have still gone on increasing, and that the excess value in 1876 was 120 millions, and in 1877 140 millions. Though I do not share in the gloomy conclusions which Mr. Bourne draws from these figures, yet I think they are well worthy of consideration and require an explanation. Both Mr. Newmarch and Mr. Bourne consider that great deductions must be made from the declared value of imports and additions to the value of exports for the purpose of a fair comparison, in respect of freight, insurance, profits, and other items; but after making these deductions the difference is still very great and is growing year by year; and it would appear that the balance in favour of imports was from 1860-70 from 20 to 30 millions, in 1871 it fell to 15 millions, in

1872 to zero, in 1875 it rose to 40 millions, in 1876 to 74 millions, and in 1877 to 100 millions. Here comes in the value of Mr. Giffen's estimate as to foreign investments. If we are to assume that his estimate is accurate, and that, apart from trader's profits, the return of capital realised abroad on the Indian pensions and expenditure on home establishments, the income of English capital invested abroad is as much as 65 millions, and if during the years 1865-75 the average reinvestments abroad amounted to 80 millions, we have only to assume that these investments had ceased during the last three or four years, owing in part to reduction of profits at home and in part to abundant foreign securities, and the whole difference becomes at once intelligible. The normal indebtedness of other countries to England must be nearly 100 millions a-year, and if no fresh investments are made abroad this amount must be imported to this country in the shape of consumable articles. In prosperous years we invest a large part of our profits in foreign securities, and these will nearly balance the account. I will not say the explanation is wholly complete, but it is such as to remove any misgiving upon the question; I think, however, a more complete and thorough examination of the foreign investments of this country is yet to be desired, as it would throw light upon many interesting questions. What we do know, however, is sufficient to relieve us from any anxiety as to the excess of imports over exports. There is no reason to believe that we are eating up our resources or living beyond our means; and the magnitude of our import trade, so far from being a matter for alarm, is evidence of the greatness of our resources and the stability of our position.

" ' Indeed, I cannot help thinking that too much is often made of what is called depression of trade. It is no doubt the fact that some of our leading industries are suffering, especially that of iron; that the profits of the coalowners are greatly reduced; and that both profits and wages have fallen in our cotton industries; but, when we look at the country as a whole, there is reason to believe that its general prosperity is not substantially impaired. The imports show a continually increasing import of those articles of food specially consumed by the working classes. The returns of pauperism show, until quite recently, no increase of paupers, and that quite recent increase is very slight; the number is still far less than it was a few years ago. The returns of the railway traffic, especially of the third class, continue to increase; the savings' banks show no aggregate reduction. All the principal articles of consumption are at a lower price than for many years past. Coal is cheaper than ever before; the price of cotton and woollen goods is very low. There cannot well be suffering out of plenty. I am

not sure that the country as a whole is not sounder than it was in 1873, when a great inflation had trebled the price of coal, and had taxed the country for the benefit of coalowners by nearly 60 millions a-year. Capital was never more abundant. Wages have again fallen, and with cheap coal, cheap products of the earth, abundant capital, and low wages, there is no reason to believe that these will not combine together, and speedily give us a new era of prosperity. If the results of the Congress at Berlin should be to give us a fair prospect of peace, we may confidently expect a renewal of activity of trade not less great than that of 1870 to 1873. I believe, however, that there is one matter which weighs on the prosperity of Europe even more than the immediate fear of war, and that is the stupendous armaments which have been accumulated by every country. Even in time of peace the men under arms number $2\frac{1}{2}$ millions, and the expenditure on armies and navies more than 150 millions, in which we bear at least our proportional share. Such a state of things is full of social, economical, and political dangers, and if the Congress at Berlin could effect a sensible reduction in this evil, it would do more for the peace and prosperity of Europe than even by settling the Eastern Question.

“I fear, however, I have already detained you too long. The questions I have referred to are all among the matters which our Society has considered and investigated. Its motto in the past has been, “*nil actum reputans dum quid superesset agendum*,” and I confidently believe its work in the future will be not less useful than it has been in the past.’”

The FAMINES of the WORLD: PAST and PRESENT. By CORNELIUS WALFORD, F.T.A., F.S.S., Barrister-at-Law, and Fellow of the Royal Historical Society.

[Read before the Statistical Society, 19th March, 1878.]

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My present subject has at once the advantage and the disadvantage of being novel. I do not find that any previous writer has deemed the subject of famines worthy of careful investigation. I could not find, when I required to write upon the subject some two years ago, that even a list of the famines which had occurred in the history of the world, so far as we know of that history, had been compiled. I then made the chronological table, which I shall presently give, as a first effort in this direction. I felt that it must necessarily be incomplete. I have since added to it, and begin to hope that it is now sufficiently matured to be presented to this Society.

It is not so much a mere table of famines, instructive as I venture to think such records are, when compiled with any view to completeness, that I desire to bring before you this evening. There are many direct and indirect considerations arising out of the subject, which naturally commend themselves for elaboration. Anything affecting the food supply of the people has always been regarded as of importance here. Famines too often affect the very existence of the peoples among whom they occur. A table of the total deaths resulting from famines, even in one generation of men, would present a terrible picture. This can never be presented: the materials for its compilation nowhere exist. I know of no more terrible contemplation than that of the starvation of large numbers of our fellow creatures. Some writers have appeared to look upon famines as furnishing one of the necessary checks, upon what they

would term the inordinate growth of population ; and in that sense as being one of the means devised for the regulation of the universe. Such a view appears to me to be altogether incompatible with any ideas of Divine wisdom : it can only be such a clumsy and cruel expedient, as might be resorted to in the working out of a design wherein wisdom had taken no part. The occurrence of famines would appear to me to be likely to result rather from the failure of human means and foresight in many instances than otherwise. In my table I have been careful to note the assigned cause wherever the records furnish any. I think it will be convenient at this point to present the table. It takes us at once from the domain of speculation into that of history. The authorities from which the materials of the table were drawn, are so numerous that it is impossible, except occasionally, to make any reference to them.

TABLE I.—*Chronology of Famines.*

B.C.	The Scriptures speak of several famines which had been in Palestine and in the neighbouring countries, as that in the time of Abraham (Gen. xii, 10), and again in the time of Isaac (Gen. xxi, 1).
1708	<i>Egypt.</i> The seven years' famine (Gen. xli, 27) began this year. It was not confined to Egypt, but extended to Palestine at least, if not further. <i>Vide</i> v. 56.
503-443	<i>India.</i> During the reign of the Emperor Jei-chund, extending over this period, there was a great pestilence and famine.
493	<i>Rome.</i> Visited by a famine.
486	" Famine. Thousands threw themselves into the Tiber.
A.D.	
6	<i>Rome.</i> Famine.
10-15....	<i>Ireland.</i> A general fruitlessness, giving rise to famine and great mortality.
42	<i>Judea.</i> "Desolated by a famine."
51	<i>Greece.</i> Famine.
54	<i>England.</i> Grievous famine.
76	<i>Ireland.</i> Great scarcity.
104	<i>England and Scotland.</i> Famine.
107	<i>Britain.</i> From long rains.
119	" "After a pillar of fire seen several nights in the air."
151	<i>Wales.</i> Grievous.
160	<i>England.</i> Multitudes starved.
173	" After severe frost and snow.
175	<i>Rome.</i> Famine.
192	<i>Ireland.</i> General scarcity ; bad harvest ; mortality and emigration, "so that lands and houses, territories and tribes, were emptied."—First notice of emigration.
228	<i>Scotland.</i> "Thousands were starved."
238	" "Most grievous.
259	<i>Wales.</i> Thousands were "pined to death."
272	<i>Britain.</i> People ate the bark of trees and roots.
288	" Famine all through.
298	<i>Wales.</i> After a comet.
306	<i>Scotland.</i> Thousands died ; "most grievous and fatal" for four years.—SHORT.
307	<i>Asia Minor.</i> A famine prevailed in Cappadocia.
310	<i>England.</i> 40,000 perished. [SHORT gives this in A.D. 338 (?) 308.]
325	<i>Britain.</i> Generally, severe famine.

TABLE I.—*Chronology of Famines—Contd.*

A.D.	
331.....	<i>Antioch.</i> This city was afflicted by so terrible a famine that a bushel of wheat was sold for 400 pieces of silver. During this grievous distress Constantine sent to the Bishop 30,000 bushels of corn, besides an immense quantity of all kinds of provisions, to be distributed among the ecclesiastics, widows, orphans, &c.— <i>Ency. Brit.</i>
336.....	<i>Syria.</i> Also plague.
370.....	<i>Phrygia.</i> Awful famine.
381.....	<i>Antioch.</i> Reign of Theodosius the Great, again visited by a famine, "accompanied with a grievous plague;" also "terrible" famine amongst the Goths.
410.....	<i>Rome.</i> Followed by a plague.
434.....	<i>Italy.</i> Famine.
439.....	<i>Britain.</i> After a comet.
446.....	<i>Constantinople.</i> Severe famine.
450.....	<i>Italy.</i> When parents ate their children.— <i>DUFRESNOY.</i>
466.....	<i>Britain.</i> "And bad fatal air."— <i>SHORT.</i>
475.....	<i>Northern Nations.</i> A famine, partly from locusts.
480.....	<i>Scotland.</i> After a comet.
484.....	<i>Africa.</i> From drought.
515.....	<i>Britain.</i> "Most afflictive."
520.....	<i>Venice.</i> A famine. The city relieved by Theodoric the Great.
523.....	<i>Scotland.</i> "Terrible."
527.....	<i>North Wales.</i> Famine.
531.....	<i>South Wales.</i> And a small plague.
535.....	<i>Ireland.</i> Destruction of food and scarcity, lasted four years.
537.....	<i>Scotland.</i> Dearth; also in <i>Wales.</i>
538.....	<i>Italy.</i> Great famine.
547.....	" Famine.
576.....	<i>Scotland.</i> "Fatal."
590.....	<i>England.</i> From a tempest that raised a great flood.
592.....	" Drought from 10th January to September; and locusts.
600-604...	<i>France.</i> Famine.
606.....	<i>England.</i> From heat and drought.
625.....	<i>Britain.</i> Grievous.
664.....	<i>Ireland.</i> Great famine preceding second appearance of <i>Buidhe Chonnaill.</i>
667.....	<i>Scotland.</i> Grievous.
669.....	<i>France.</i> Great famine.
669.....	<i>Ireland.</i> Great scarcity; and in following year.
680.....	<i>Britain.</i> From three years' drought.
683.....	<i>Syria and Libya.</i> Famine.
695.....	<i>England</i> } Famine and pestilence during three years, "so that men
700.....	<i>Ireland</i> } ate each other."
703.....	<i>Italy.</i> Three years' famine.
712.....	<i>Wales.</i> Famine.
718.....	<i>Syria.</i> Famine.
730.....	<i>England, Wales, and Scotland.</i> Great famine.
746.....	<i>Wales.</i> Dearth.
748.....	<i>Scotland.</i> Famine.
759.....	<i>Ireland.</i> Great famine throughout the kingdom; and more or less for several years.
768.....	<i>Ireland.</i> Famine and an earthquake.
772.....	" Famine from drought.
774.....	<i>Scotland.</i> "With plague."
791.....	<i>Wales.</i> Grievous.
792.....	<i>Scotland.</i> Dearth.
793.....	<i>England.</i> "After many meteors;" and in other parts of the world.
803.....	<i>Scotland.</i> "Terrible."

TABLE I.—*Chronology of Famines—Contd.*

A.D.	
822-23....	<i>England</i> . "Thousands starve;" also in <i>Scotland</i> , according to SHORT.
824-25....	<i>Ireland</i> . Great dearth.
836	<i>Wales</i> . "The ground covered with dead bodies of men and beasts." —SHORT.
845	<i>Bulgaria</i> . Great famine.
850	<i>Paris</i> . Famine prevailed.
851	<i>Italy and Germany</i> . Famine.
856	<i>Scotland</i> . A four years' famine began.
863	With a plague.
868	<i>Paris</i> . Suffered again from famine.
872	<i>England</i> . "From ugly locusts."
873	<i>Paris</i> . Suffered again from famine.
879	<i>Universal</i> famine prevailed.
883	<i>Italy</i> . "Terrible."
887	<i>England</i> . "Grievous two years."
890	<i>Scotland</i> . Great dearth.
895-97....	<i>Ireland</i> . Famine from invasion of locusts.
896-99....	<i>Paris</i> . This city again suffers from famine.
898	<i>France</i> . "Sore famine."
900	<i>England</i> . Famine.
931	<i>Wales</i> . Famine.
932	<i>France</i> . Famine.
936	<i>Scotland</i> . After a comet; four years, "till people began to devour one another."—SHORT.
945-46....	<i>France</i> . Famine.
946	<i>Italy</i> . "Shocking."
954	<i>England, Wales, and Scotland</i> . Great famine, which lasts four years.
962	<i>England</i> . Famine caused by frost.
963-64....	<i>Ireland</i> . An intolerable famine, "so that parents sold their children for food."
968	<i>Europe</i> . Chiefly <i>Germany</i> and <i>Scotland</i> .
969	<i>England</i> . "All grain burnt by the winds."—SHORT.
975	<i>Paris</i> . A great number of inhabitants carried off by famine.
"	<i>England</i> . Famine scoured the hills.
976	" This was the "great famine," <i>mica hungor</i> .—JOHN OF BROMPTON.
987	<i>Albania</i> . Dearth.
988	<i>England</i> . From rains and barren land.
989	" "Grievous, from a rainy winter; bad spring; neither ploughing nor sowing; snowy harvest."
1004	<i>England</i> . "Such a famine prevailed as no man could remember."
'06	" "This year was the great famine in <i>England</i> ." Sweyn the Dane quits in consequence.
'08	<i>Wales</i> . Attended with plague.
'12	<i>England—Germany</i> . Endless multitudes died of famine.
'16	<i>Europe</i> . Awful famine throughout <i>Europe</i> . "Hails, thunder, and lightning."—SHORT.
'22	<i>Hindustan</i> (reign of Mussood I). Great drought followed by famine: whole countries entirely depopulated. This year was remarkable for drought and famines in many parts of the world.—Dow's <i>Hindustan</i> .
'25	<i>England</i> . From rains, and plague.
'31	" From great rains and locusts.—SHORT.
'35	<i>Byzantine Empire</i> . Visited by famine.
'42	<i>England</i> . About this time such a famine came on that a sextarius of wheat, which is usually a load for one horse, sold for 5 solidi and more.—HENRY OF HUNTINGDON. Lasted seven years.
'47	<i>Ireland</i> . Great famine and snow; also in <i>England</i> , from snow and frost.

TABLE I.—*Chronology of Famines—Contd.*

A.D.	
1047-48	<i>Scotland.</i> Famine extending over two years.
'50	<i>England.</i> Great famine and mortality; from barrenness of the land.
'51	<i>Mexico.</i> Famine which caused the Toltecs to migrate.
'62-60	<i>Hindustan.</i> There was seven years' drought in Ghor [<i>? Ghore</i> , supposed to be one of the earliest seats of the Afghan race], so that the earth was burned up, and thousands of men and animals perished with heat and famine.— <i>Dow's Hindustan.</i>
'53	<i>England.</i> Famine after a comet; lasted two years.
'58	<i>Poland.</i> Grievous famine.
'64	<i>Egypt.</i> For seven successive years the overflow of the Nile failed, and with it almost the entire subsistence of the country; while the rebels interrupted supplies of grain from the north. Two provinces were entirely depopulated; in another half the inhabitants perished; while in Cairo city (El-Káhivich), the people were reduced to the direst straits. Bread was sold for 14 dirhems to the loaf; and all provisions being exhausted, the worst horrors of famine followed. The wretched resorted to cannibalism, and organised bands kidnapped the unwary passenger in the desolate streets, principally by means of ropes furnished with hooks and let down from the latticed windows. In the year 1072 the famine reached its height. It was followed by a pestilence, and this again was succeeded by an invading army.— <i>Encyclopædia Britannica</i> , Art. Egypt.
'68	<i>England.</i> Famine and plague after a severe winter.
'69	" Normans desolated England, and in the following year famine spread over the northern counties of England, "so that man, driven by hunger, ate human, dog, and horse flesh;" some to sustain a miserable life sold themselves for slaves. All land lying "between Durham and Yorke lay waste, without inhabitants or people to till the ground, for the space of nine years, except only the territory of St. John of Bewlake" [<i>Beverley</i>]. "Divers other parts of his realm were so wasted with his wars that for want both of husbandry and habitation, a great dearth did ensue, whereby many were forced to eat horses, dogs, cats, rats, and other loathsome and vile vermin; yea, some abstained not from the flesh of men. This famine and desolation did specially rage in the north parts of the realm."— <i>Harleian Miscellany</i> , III, p. 151.
'78	<i>England.</i> Famine, followed by mortality so fierce that the living could take no care of the sick, nor bury the dead.—HENRY OF HUNTINGDON.
'78	<i>Constantinople.</i> "From the multitudes of strangers."—SHORT.
'80	<i>Denmark.</i> Famine.
'86	<i>England.</i> A great murrain of animals, and such intemperate weather that many died of fever and famine.—HENRY DE KNIGHTON. Excessive rains.—SHORT.
'87	<i>England.</i> Pestilence followed by famine; great suffering.
'87	<i>Denmark.</i> King Olaf II, surnamed the "Hungry," in consequence of famine in his reign.
'93	<i>England.</i> Great famine and mortality.—STOW.
'96	" "Heavy-timed hunger that severely oppressed the earth."— <i>Saxon Chronicle.</i> Summer rain, tempests, and bad air.—SHORT.
'99	<i>England.</i> Famine from rains and floods.
1100	<i>Antioch.</i> Famine.
'06	<i>England.</i> From barren land; then plague.
'11	" Winter long and very severe; great scarcity followed.
'16	<i>Ireland.</i> Great famine, "during which the people even ate each other."
'17	<i>England.</i> From tempest, hail, and a year's incessant rains.
'20	<i>Jerusalem.</i> "Plague of mice and locusts."—SHORT.
'21-22	<i>England.</i> "Great famine from long and cruel frosts."

TABLE I.—*Chronology of Famines—Contd.*

A.D.	
1123-24	<i>France and Germany.</i> Famine from terrible weather; "greatest plague."—SHORT.
'24	<i>England.</i> "Such a famine prevailed that everywhere in cities, villages, and cross-roads lifeless bodies lie unburied." "By means of changing the coin all things became very deere, whereof an extreame famine did arise, and afflict the multitude of the people, even to death."—PENKETHMAN.
25	<i>England.</i> Great flood on St. Lawrence's Day; famine in consequence of destruction of crops, &c.
'26	<i>England.</i> Incessant rains during the summer, "when followed in all England a most unheard of scarcity. A sextarius of wheat sold for 20s."
'30-31	<i>Rome.</i> Great famine.
'35-37	<i>England.</i> Great drought and famine.
'41	" Famine, said to have lasted twelve years.—SHORT.
'46	<i>France.</i> Famine.
'51-52	<i>Europe and Palestine.</i> Famine.
'53	<i>Ireland.</i> Great famine raged in Munster, and spread all over Ireland.
'54	<i>England.</i> From rains, frost, tempest, thunder, and lightning.
'57	<i>Italy.</i> After great snow and frost.
'62	Said to have been a great famine all over the world.
'75	<i>England.</i> Pestilence, followed by great dearth.
'76	<i>Wales.</i> A great famine and mortality.
'83	<i>England and Wales.</i> A great famine severely afflicted both England and Wales.
'88	<i>Ireland.</i> Great scarcity of food in north of Ireland.
'93-96	<i>England, France.</i> Famine occasioned by incessant rains. "The common people (<i>vulgus pauperum</i>) perished everywhere for lack of food; and on the footsteps of famine the fiercest pestilence followed, in the form of an acute fever."—WALTER HEMINGFORD.
1200	<i>Ireland.</i> "A cold, foodless year."
1200	<i>Egypt.</i> Famine of great severity from deficient rise of the Nile.
'03	<i>England.</i> A great mortality and famine, from long rains.
'03	<i>Ireland.</i> A great famine—"so that the priests ate flesh meat in Lent."
'09	<i>England.</i> Famine from a rainy summer and severe winter.
'24	" A very dry winter and bad seed-time, whence followed a great famine.
'27	<i>Ireland.</i> A great famine throughout the country.
'30	<i>Rome.</i> After a deluge of the Tiber.
'85	<i>England.</i> Famine and plague; 20,000 persons die in London; people eat horseflesh, bark of trees, grass, &c.—SHORT.
'89	<i>England.</i> Great famine, "people eat their children."—SHORT.
'43	<i>Hungary.</i> Great famine from Tartar invasion.
'48	<i>Germany.</i> Famine.
	<i>England.</i> "By reason of embasing the coin a great penury followed."
'52	" No rain from Whitsuntide to autumn; no grass; hence arose a severe famine; great mortality of man and cattle; dearth of grain and scarcity of fruit.
'57	<i>England.</i> The inundations of autumn destroyed the grain and fruit, and pestilence followed.
'58	<i>England.</i> North winds in spring destroyed vegetation; food failed, the preceding harvest having been small, and innumerable multitudes of poor people died. <i>Fifty shiploads of wheat, barley, and bread were procured from Germany;</i> but citizens of London were forbidden by proclamation against dealing in same. "A great dearth followed this wet year pest, for a quarter of wheat was sold for 15s. and 20s., but the worst was in the end; there could be none found for money when—though many poor people were constrained to eat barks of trees and horseflesh; but many starved for want of food—20,000 (as it was said) in London."—PENKETHMAN.

TABLE I.—*Chronology of Famines—Contd.*

A.D.	
1262	<i>Ireland.</i> Great destruction of people from plague and hunger.
'68	<i>Sicily.</i> Terrible famine; also in <i>Vienna</i> .
'71	<i>England.</i> A violent tempest and inundation, followed by a severe famine in the entire district of Canterbury.
'71	<i>Ireland.</i> Pestilence and famine in the whole of Ireland.
'81	<i>Poland.</i> Famine.
'86	<i>England.</i> Short speaks of a twenty-three years' famine commencing this year.
'89	<i>England.</i> A tempest destroyed the seed, and corn rose to a great price.
'91	<i>India.</i> No rain fell in the provinces about Delhi, and there was in consequence a most terrible famine.— <i>Vide BIRNI'S Hist. of Feroze.</i>
'94	<i>England.</i> Severe famine; many thousands of the poor died.
'95	" No grain or fruits, "so that the poor died of hunger."—CAMDEN. Hail, great concussion of elements.—SHORT.
'95	<i>Ireland.</i> Great dearth during this and the previous and following years.
'97	<i>Scotland.</i> "Calamitous" famine and pestilence.
'98	<i>England.</i> 26 Edward I. "A great famine in England, chiefly want of wine; so that the same could scarcely be had to minister the communion in the churches."—PENKETHMAN.
'99	<i>Persia</i> ravaged by famine and pestilence.
1302	<i>England, Scotland, Ireland.</i> —Famine.
'14	" Grains spoiled by the rains. Famine "so dreadful that the people devoured the flesh of horses, dogs, cats, and vermin." Parliament passed a measure limiting the price of provisions.
'14	<i>Ireland.</i> Famine and various distempers.
'14	<i>Thuringia, Poland, Silesia.</i> Lasted years in <i>Lithuania</i> .
'16	<i>England.</i> Universal dearth, and such a mortality, particularly of the poor, followed, that the living could scarcely bury the dead. Royal proclamation: no more beer to be made.
'16	<i>Ireland.</i> Great dearth. Eight captured Scots eaten at siege of Carrickfergus.
'17	<i>Ireland.</i> A great famine throughout the country in consequence of Bruce's invasion.
'21	<i>England.</i> Famine again; this is regarded by some writers as the last serious famine in this country.
'32	<i>Ireland.</i> A peck of wheat sold for 22s.
'35	<i>England.</i> Famine occasioned by long rains.
'36	<i>Scotland.</i> Desolated by a famine.
'37	<i>China.</i> A famine occasions a pestilential epidemic.
'39	<i>Ireland.</i> A general famine.
'41	<i>England, Scotland.</i> Great dearth in this and following year. People ate horses, dogs, cats, &c., to sustain life.—HOLINSHED.
'42	<i>India.</i> Famine in Delhi, very severe; few of the inhabitants could obtain the necessaries of life.
'44-45	<i>India.</i> A famine, supposed to have extended more or less over the whole of Hindustan. Very severe in the Deccan. The Emperor Mahommed, it is said, was unable to procure the necessaries for his household.—Dow's <i>Hindustan</i> .
'47	<i>Italy.</i> A dreadful famine which swept away by absolute starvation vast numbers of the inhabitants; and in the following year a pestilence of a deadly nature swept the peninsula. "Such was the sufferings produced by these visitations that it was calculated that two-thirds of the whole population were destroyed." War followed. <i>Encyclopædia Britannica</i> , Art. Italy.
'50	<i>Barbary.</i> Grain exported from <i>England</i> , causing dearth here.
'53	<i>England, France.</i> Great famine.—RAPIN.
'55	" Great scarcity; grain brought from <i>Ireland</i> afforded much relief.

TABLE I.—Chronology of Famines—Contd.

A.D.	
1358	<i>England.</i> "A great dearth and pestilence happened in England, which was called the second pestilence."—PENKETHMAN.
'61	<i>Poland.</i> Famine.
'69	<i>England.</i> Great pestilence among men and larger animals; followed by inundations and extensive destruction of grain. Grain very dear.
'74-76	<i>Italy.</i> Famine.
'90	<i>England.</i> Great famine arising from scarcity of money to buy food.
'92	" Great scarcity for two years; people ate unripe fruit, and suffered greatly from "Flux." The Corporation of London advanced money and corn to the poor at easy rates.—STOW. Short attributes the famine of these three years to the "hoarding of corn." Penkethman gives further details regarding the assistance rendered by the Corporation of London, as follows: "The Mayor and Citizens of London took out of the Orphan's chest in their Guildhall, 2,000 marks to buy Corn and other Victuals from beyond the sea; and the Aldermen each of them layd out 20 pound to the like purpose of buying Corn; which was bestowed in divers places, where the poore might buy at an appointed price, and such as lacked money to pay doune, did put in surity to pay in the yeare following: in which yeare, when Harvest came, the fields yielded plentifull increase, and so the price of Corne began to decrease," p. 68.
1410	<i>Ireland.</i> "A great famine."
'12-13	<i>India.</i> Great drought, followed by famine, occurred in the Ganges-Jumna delta.
'27	<i>England.</i> Famine from great rains.
'29	<i>Scotland.</i> Dearth.
'33	<i>Ireland.</i> Famine of great severity.
'37-38	<i>England.</i> Wheat rose from its ordinary price of 4s. to 4s. 6d. per quarter to 26s. 8d. Bread was made from fern-roots.—STOW. Rains and tempests.—SHORT.
'38	<i>England.</i> "In the 17th yeere of Henry the Sixt, by meanes of great tempests, immeasurable windes and raines, there arose such a scarcitie that wheat was sold in some places for 2 shillings 6 pence the bushell."—PENKETHMAN.
'39	<i>England</i> (18 Hen. VI). "Wheat was sold at London for 3s. the bushell, mault at 13s. the quarter, and oates at 8d. the bushell, which caused men to eat beanes, peas, and barley, more than in an hundred years before: wherefore Stephen Browne, then maior, sent into <i>Prusse</i> (Prussia), and caused to be brought to London many ships laden with rye, which did much good; for bread-corne was so scarce in England that poor people made their breade of ferne rootes."—PENKETHMAN.
'40	<i>England.</i> A scarcity. <i>Scotland.</i> A famine.
'42	<i>Sweden.</i> A famine.
'47	<i>Ireland.</i> Great famine in the spring.
'71	<i>India.</i> A famine in Orissa.
'86	<i>England.</i> "Famine sore."
'91	<i>Ireland.</i> Such a famine that it was called "The Dismal Year."
	<i>England.</i> Considerable scarcity.
'94	" Great scarcity and high prices.
'95	<i>India.</i> A great dearth occurred about this date in Hindustan.
'97	<i>Ireland.</i> "Intolerable famine throughout all Ireland—many perished."
1521	<i>England.</i> Famine and mortality. "Wheat sold in London for 20s. a quarter."
'21	<i>India.</i> A very general famine in Sind.
'22	<i>Ireland.</i> A great famine.
'23	<i>England.</i> Severe famine.
'27	" (19 Hen. VIII). "Such scarcitie of bread was at London and throughout England that many dyed for want thereof. The

TABLE I.—Chronology of Famines—Contd.

A.D.	England—Contd.
1527	King sent to the Citie, of his owne provision, 600 quarters : the bread carts then coming from Stratford [where nearly all the bakings were, probably on account of proximity to Epping Forest] towards London, were met at the <i>Mile End</i> by a great number of citizens, so that the maior and sheriffes were forced to goe and rescue the same, and see them brought to the markets appointed, wheat being then at 15s. the quarter. But shortly after the merchants of the <i>Stiliard</i> [Steelyard] brought from <i>Danske</i> [Danzic] such store of wheat and rye, that it was better cheape at London than in any other part of the Realme."—PENKETHMAN.
'28	<i>Venice</i> . Famine.
'40	<i>Sardinia</i> . The island desolated by a famine.
'40-43	<i>India</i> . A general famine in Sind during these years.
'45	<i>England</i> . A wonderful dearth and extreme prices.
'49	" Famine from neglect of agriculture.
'56-58	" Famine from great rains, bad and inconstant seasons ; heat and long south winds.—SHORT.
'63	<i>London</i> . Famine and pestilence, said to have taken off 10,000 people.
'65	<i>British Isles</i> . Extended famine. 2,000,000 <i>l.</i> said to have been expended in importation of grain.
'81	<i>Persia</i> . Desolated by famine and plague.
'86	<i>England</i> . "In the 29th yeare of Queen Elizabeth, about January, Her Majesty observing the general Dearth of Corne, and other Victual, growne partly through the unseasonableness of the year then passed, and partly through the uncharitable greediness of the Corne-masters, but especially through the unlawful and over much transporting of graine in forreine parts ; by the advice of Her most Hon. Privy Council, published a Proclamation, and a Booke of Orders, to be taken by the Justices for reliefe of the Poore [commencement of the <i>poor law</i>] notwithstanding all which the excessive prices of graine still encreased : so that Wheat in meale, was sold at London for 8s. the Bushel, and in some other parts of the Realme above that price."—PENKETHMAN.
'86	<i>Hungary</i> . Famine.
'86	<i>Ireland</i> . Extreme famine consequent on the wars of Desmond. Human flesh said to have been eaten. Also in <i>England</i> .
'88-89	<i>Ireland</i> . Great famine period, "when one did eate another for hunger."
'91	<i>Italy</i> . Famine.
'94	<i>England and Hungary</i> . Famine. During the siege of Paris by Henry IV this year, owing to famine, bread which had been sold, while any remained, for a crown a-pound, was at last made from the bones of the charnel-house of the Holy Innocents.—HINAULT.
'95	<i>England</i> . (36 Elizabeth.) "By the late Transportations of graine into forreine parts, the same was here grown of an excessive price, as in some parts of this Realme, from 1 <i>l.</i> to 4 markes the quarter, and more, as the Poore did feele ; and all other things whatsoever were made to sustain man, were likewise raysed, without all conscience and reason. For remedie whereof our Merchants brought back from <i>Danske</i> [Danzic] much Rye and Wheat, but passing deere ; though not of the best, yet serving the turn in such extremities. Some Prentices and other young people about the Citie of London, being pinched of their Victuals, more than they had beene accustomed, tooke Butter from the market folkes in Southwarke, paying but 3 <i>d.</i> where the owners would not afford it under 5 <i>d.</i> by the pound. For which disorder the said young men were punished on the 27th June, by whipping, setting on the Pillorie, and long imprisonment."—PENKETHMAN.
'95-96	<i>Italy, Germany, &c.</i> Famine.
'98	<i>Pegu</i> . Very severe.

TABLE I.—Chronology of Famines—Contd.

A.D.	
1600	<i>Russia</i> . Famine and plague, of which 500,000 die, and 30,000 in Livonia; also in <i>England</i> , "cold, dry summer."—SHORT.
'01-03	<i>Ireland</i> . Great scarcity and want. Cannibalism again reported.
'10	<i>Dresden</i> . Visited by famine.
'30	<i>England</i> . Dearth; bread made of turnips, &c.
'31	<i>India</i> . A general famine caused by drought and war; and throughout <i>Asia</i> .
'49	<i>Scotland and North of England</i> . "From rains and wars;" also following year.
'49	<i>Lancashire</i> . Occasioned by the ravages of the armies; and the plague follows it.—SALMON'S <i>Chronological Historian</i> .
'50-51	<i>Ireland</i> . A famine throughout the country. Sieges of Limerick and Galway.
'56	<i>Rome</i> . Famine for two years.
'61	<i>India</i> . Famine caused by drought, and supposed to be confined to the Punjab.
'90	<i>Ireland</i> . Famine and disease.
'90	<i>Italy</i> . From rains.
'93	<i>France</i> . Awful famine.—VOLTAIRE.
'94-99	<i>Scotland</i> . Famine; <i>England</i> , great dearth, "from rains, colds, frosts, snows; all bad weathers."—SHORT.
1700	<i>England</i> . From rain and cold of previous year.
'03	<i>India</i> . Famine in Thar and Parkar districts of Sind.
'09	<i>France</i> . A severe famine throughout the kingdom.
'09	<i>Scotland</i> . From rain and cold; also in <i>England</i> .
'11	<i>Carniola</i> . Famine from rain and mildew; continued several years.
'27-29	<i>Ireland</i> . Corn very dear. "Many hundreds perished." Emigration.
'33	<i>India</i> . Famine; appears to have been confined to North Western Provinces.
'39	<i>France</i> . A severe famine.
'39	<i>India</i> . Famine in Delhi and its neighbourhood.
'39-40	<i>Ireland</i> . Potatoes destroyed by frost; wheat 41s. per kilderkin.
'40-41	<i>England</i> . "From frost, cold, exporting and hoarding up corn."—SHORT.
'41	<i>Scotland</i> . From "terrible shake-winds when corn was ready for reaping."—SHORT.
'45-52	<i>India</i> . Famine in Nara districts of Sind, and Thar and Parkar.
'48	<i>England</i> . Extended famine.
'65	<i>Ireland</i> . Great scarcity; distilling and exportation of corn prohibited by Act of Parliament.
'66	<i>Scotland</i> . "The magistrates of <i>Edinburgh</i> and <i>Glasgow</i> have put a stop to the exportation of grain, tallow, and butter, in their respective jurisdictions; a power which the magistrates of London do not seem to possess."— <i>Gentleman's Magazine</i> , February.
'69-70	<i>India</i> (Hindustan). First great Indian famine of which we have record. It was estimated that 3,000,000 of people perished. The air was so infected by the noxious effluvia of dead bodies, that it was scarcely possible to stir abroad without perceiving it; and without hearing also the frantic cries of the victims of famine who were seen at every stage of suffering and death. Whole families expired, and villages were desolated. When the new crop came forward in August it had in many cases no owners. <i>Encyclopædia Britannica</i> , Art. Hindustan. Other estimates have been that one-third of the population perished. "Alarming want of rain was also reported throughout all the upper parts of Bengal. Madras was also suffering from drought, and from the ravages of the enemy, and the demands for grain caused a scarcity also in Calcutta. During September, October, and November, the drought continued nearly all over Bengal, the calamity being most severely felt in Behar and the Bengal districts

TABLE I.—*Chronology of Famines—Contd.*

A.D.	
1769-70	<i>India—Contd.</i> north of the Ganges. A plentiful rain fell in June, 1770; but the hopes of relief from the next crop which were thereby raised, were disappointed by the overflowing of the rivers in the eastern provinces; but the new crops in all the districts not greatly injured by floods were good." The famine ceased by the end of the year.— DANVERS, 1877.
'70	<i>Bohemia.</i> Famine and pestilence said to carry off 168,000 persons.
'70	<i>Russia and Poland.</i> Famine and pestilence carry off some 20,000 people.
'71	<i>Italy.</i> Failure of harvest.
'75	<i>Cape de Verde.</i> Great famine—16,000 people perish.
'81-83	<i>India.</i> Famine in the Carnatic and the Madras settlement. "The Carnatic had been devastated by Hyder Ali's incursions in 1780-81, and the settlement of Madras was reduced to great straits for food, as the whole country in its vicinity was suffering from a general scarcity. Early in 1781 the Government of Madras took steps to regulate the supply of grain; and the distress continuing, in January, 1782, a public subscription was raised for the relief of the poor, to which the Government contributed. <i>This was the origin of the institution for the relief of the native poor</i> , known as the <i>Monegar Choultry</i> . Early in October the Government deemed it necessary to take the supply of rice and food-grain into their own hands. The scarcity seems to have come to an end in the early months of 1783."— DANVERS, 1877.
'82-84	<i>India.</i> Famine in province of Sind, including Thar and Parkar. "When the Kulhora dynasty ceased in 1782, and that of the Talpors commenced, a very severe famine occurred, which lasted for two and a-half years. During four months of this time not a grain of corn was procurable. This famine was caused by the burning of crops, and the suspension of cultivation during a period of hostilities. There was also no rainfall for two years."— DANVERS, 1877.
'83-84	<i>India.</i> Famine in the north-west provinces of the Punjab. "The disturbance of the season of 1783 seems to have been general; but as the countries most affected were not then subject to British rule, very little information therein is obtainable. There are reasons for believing that the upper parts of Hindustan had been visited with extraordinary drought during the two previous years. In September and October, 1783, there was an abnormal cessation of rain and extreme drought, and in the latter month a terrible famine was reported in all the countries from beyond Zahore to Karumnasa (the western boundary of Behar) . . . and the famine had been already felt in all the western districts towards Delhi. To the northward of Calcutta, the crops upon the ground had been scorched, and nearly destroyed."— DANVERS, 1877. By the middle of 1784 the famine had abated.
'87-88	<i>India.</i> Famine prospects in Behar and north-west provinces of Punjab, consequent upon access of rain and floods. The Government laid an embargo on the exportation of grain.
'89	<i>France.</i> Grievous famine; province of Rouen.
'90-91	<i>India.</i> Famine in district of Baroda, and in many adjoining districts, in some of which, however, it was only partial and local. "Very little is known concerning the famine in many of the districts named, beyond the fact that in 1790 <i>tradition records the occurrence of a very severe famine</i> . An almost total failure of rain was the immediate cause, apparently, of the calamity; and sufficient information exists to prove that it was one of the most remarkable on record. So great was the distress that many people fled to other districts in search of food; while others destroyed themselves,

TABLE I.—*Chronology of Famines—Contd.*

A.D.	<i>India—Contd.</i>
1790-91	and some killed their children, and lived on their flesh. In Belgaum the scarcity was aggravated by people flocking into the district boarding on the Godavery."—DANVERS, 1877. In Kach, in 1791, a famine was caused by innumerable black ants which swarmed in almost all parts of the country, and destroyed vegetation. [This Kach, formerly Cutch, is in Bombay Presidency, situated south-east of the mouths of the Indus, and appears in later times to have become a terribly God-forsaken place: famines and plagues constantly!]
'90-92	<i>India.</i> Serious dearth in the northern districts of the Madras Presidency, and the pressure continued for about two years, from November, 1790, to November, 1792. "Many deaths from starvation occurred. At an early period Government suspended the import and transit duties on all kinds of grain and provisions, and themselves imported grain from Bengal. In the latter part of 1791 the export of rice from Tranjore was prohibited, except to the distressed districts. Rice was distributed by Government, and relief was afforded by employing the poor on public works."—DANVERS, 1877. This was the first occasion of the poor being employed on public works by the Government in India.
'95	<i>England.</i> Scarcity of food severely felt.
1801	<i>United Kingdom.</i> Great scarcity; flour obtained from America; Committees of both Houses of Parliament were appointed to inquire into means of supplying food.
'02-04	<i>India.</i> Famine in the Nizam's dominions (Bombay Presidency). "This famine was caused in the several districts affected by it by four distinct causes, which operated apparently about the same time. In Kach the crops are said to have been destroyed by locusts. In Pahlumpur, Berva Kanta, Surat, Guzerat, Hyderabad, Belgaum, and Rutnagherry, the famine is stated to have been caused by want of rain. Candeish was overrun by the armies of Holkar; and the Pindaree bands sacked and burned villages in every direction, even destroying the grain standing in the fields; and the same fate attended the districts of Ahmednagar, Poona, and Sholapur: whilst the influx of starving people from other districts into Sattara, Kolapur, Dharwar, and Colaba, caused a scarcity of food in those districts."—DANVERS, 1877.
'04-07	<i>India.</i> Scarcity in the Bombay Presidency, following the unfavourable season of 1804; severe pressure on the poorer classes. "In the latter part of the following year a general failure of crops appears to have occurred in most parts of the presidency, and the scarcity caused thereby had not passed over until October, 1807."—DANVERS, 1877.
'12	<i>United Kingdom.</i> Great scarcity in England and Ireland.
'12-18	<i>India.</i> Famine in parts of Sind and other neighbouring districts, attributed to failure of rain. "In Kach and Pahlunpore the loss was aggravated by locusts; and in Kattywar it was followed by a plague of rats. Guzerat suffered most from scarcity caused by export of grain to the famine districts; and Ahmerdabad was overrun with starving immigrants. In Mahee Kanta the distress was caused by internal disturbances; whilst in Broach there was no failure of rain, but the crops, before they were reaped, were entirely devoured by locusts, which came in very large numbers, and spread all over the country."—DANVERS, 1877.
'12-14	<i>India.</i> Scarcity in Madras Presidency, following unfavourable season of 1811; "but no serious distress appears to have been generally experienced throughout the presidency on this occasion, although the district of Madras suffered considerably."—DANVERS, 1877.

TABLE I.—*Chronology of Famines—Contd.*

A.D.	
1818	<i>Poland.</i> Suffered from famine, consequent upon an inundation; also <i>Drontheim</i> (Norway), in consequence of the intercepting of supplies by Sweden; 5,000 perished.
'18-14	<i>India.</i> Partial famine in many parts of the Agra district; the autumn crop of 1812 failed, and the harvest of the following spring was indifferent. In 1813 the rains set in late, and were then only partial.
'19	<i>India.</i> Great scarcity in the Allahabad and neighbouring districts, under the following circumstances:—"The rains set in late, but when they did come they appear to have fallen in abundance. The land which had hitherto been so dried up by the heat that sowing had to be undertaken twice without any effect, became so drenched that a third sowing was not possible till the middle of September. In Bundelkhand the kharif of 1819 failed extensively, and frost nipped the spring crops in the beginning of 1820."—DANVERS, 1877.
'20-22	<i>India.</i> Famine in Upper Sind and neighbouring provinces, caused only partially by drought. "In 1819 there was a failure of crops in Ahmedabad, caused by unseasonable weather after the monsoon; whilst in Sawunt Waru it was occasioned by a sudden and unusual fall of rain, accompanied by a terrific storm—the former destroying the ground crops, and the latter the bagayut produce."—DANVERS, 1877.
'23	<i>Ireland.</i> Dreadful famine, produced by failure of potato crop. "While, however, the agriculturists of the continent were suffering from an abundance, a grievous famine arose in Ireland, showing the anomalies of her situation, resulting either from the staple food of her population differing from that of surrounding nations, or the limitation of her commercial exchanges with her neighbours. Her distresses from scarcity were aggravated by the agrarian outrages, originating in the pressure of tythes and rack-rents on the peasantry and small farmers. Several of the ringleaders of these disorders were apprehended by the civil and military power, and great numbers executed or transported."—WADDE'S <i>Brit. Hist.</i>
'24-25	<i>India.</i> Famine in several districts. In Delhi and neighbouring provinces it was due to severe drought; in the Madras Presidency, and more particularly in the Carnatic and Western districts, the cause was failure of rains at the usual season. In Hindustan the same.
'25-26	<i>India.</i> Famine in the north-west provinces, occasioned by failure of rains; and scarcity in Sangor and Nerbada territories caused by blight, and a succession of heavy thunder storms.
'27-28	<i>India.</i> Famine in parts of Hindustan. "The autumn of 1827 and the following spring were marked by drought across the Jumna. In Pergunnahs, Rancea, and Sirsa, the rains commenced auspiciously, but stopped abruptly early in July, and did not begin again till the 22nd September. It was then too late to retrieve the mischief which the drought had already caused; and to add to the general distress, there was every chance of a failure in the wheat. This was the staple rubbee crop in these regions, and its success was mainly dependent on the river Ganges overflowing its banks, but on this occasion the usual inundations did not occur."—DANVERS, 1877.
'31	<i>Ireland.</i> Famine; Parliament granted 40,000 <i>l.</i> for relief; 74,410 <i>l.</i> subscriptions in England.
'31-32	<i>India.</i> Scarcity in Poona and the southern Mahratta country, producing considerable distress, but hardly a famine.
'32-34	<i>India.</i> Famine in some of the north-west provinces. "It is said that not a single shower of rain fell in Ajmir in 1832. In the following year the drought was most severely felt in Bundelkhand,

TABLE I.—Chronology of Famines—Contd.

A.D.	India—Contd.
1832-34	and in the southern pergunnahs of Cawnpore; but in the pergunnahs bordering on the Ganges, the rubbee was good <i>owing to the facilities for irrigation</i> ."—DANVERS, 1877.
'38	<i>India.</i> Famine in the Guntoor and other districts in the Madras Presidency; about 200,000 perished. Mr. Danvers says "this was the most serious famine which has occurred since the British occupation, and from the fearful loss of life which took place in the Guntoor district on this occasion, the scarcity became generally known as this 'Guntoor famine.'"
'38-35	<i>India.</i> Famine in Madras Presidency. "In 1834 rain fell copiously in Kach; grain was sown and came up well; but <i>locusts</i> appeared and destroyed all the crops and grass as well as the trees. In Ahmedabad there was excessive rain the same year, which rendered cultivation impossible, and <i>locusts</i> also appeared in great quantities. In Broach the famine of 1835 was also caused by excessive rain, which destroyed the spring crops, whilst the winter crops were also <i>burnt up</i> by intense cold. In the other districts named, the scarcity appears to have been caused by failure of crops owing to drought."—DANVERS, 1877.
'37-38	<i>India.</i> Famine in north-west provinces, resulting from a general failure of rain. This was also felt in the lower provinces: for in Calcutta it is said the tanks were empty. Lord Auckland wrote in January, 1838: "The fall in the usual season of the rains last year was unusually late and scanty; and an absolute drought has followed up to the present time."
'38-39	<i>India.</i> Great scarcity and considerable distress, caused by failure of rains in Surat and other districts in the Bombay Presidency. Large numbers of people left these provinces in search of food elsewhere.
'45	<i>Ireland.</i> Famine; the Government expended 850,000 <i>l.</i> in relief of sufferers.
'46	<i>Belgium.</i> Severe famine; but relieved from supplies from neighbouring countries.
'46-47	<i>Ireland.</i> Great potato famine; Parliament advanced nearly 10,000,000 <i>l.</i> ; about 275,000 persons are supposed to have perished. The famine in the whole lasted over nearly six years; the population became reduced by about 2,500,000. The emigration to America was 1,180,409, and 1,029,552 are said to have died from starvation and pestilence consequent upon it. This is probably over-stated. It is further said that about 25 per cent. of the emigrants died within twelve months of leaving. The Commerce and Navigation Laws were repealed.
'47	<i>France.</i> Scarcity. Food riots. At Chateauroux a wealthy corn merchant who defied the mob was set upon and beaten to death.
'53-54	<i>India.</i> Great scarcity in the Bellary district (Madras Presidency). "The rains which usually fall in the months of October and November, ceased at an unusually early period in the year 1853; and the showers which usually fall in June and July, had been scanty. The grain harvests were consequently almost universally deficient, and considerable distress occurred in several parts of this presidency. In Bellary district, the season had been exceptionally unfavourable: an average fall of only 9½ inches of rain having taken place during the year, against an average of about double that quantity in previous years. The stocks of grain on hand were small: for serious damage had been occasioned by a storm in 1851 to several of the irrigation works of the district; and in 1852 the falls of rain had been unseasonable, and the crops short."—DANVERS.
'60-61	<i>India.</i> "In 1859-60 the Delhi territory suffered from want of rain. The great Nujjufghur Jheel became entirely dry—a thing never before known within the memory of man. The rains of 1860 com-

TABLE I.—*Chronology of Famines—Contd.*

A.D.	<i>India—Contd.</i>
1860-61	pletely failed in the country between the Jumna and the Sutlej; and except where irrigation was available, no autumn or spring crop could be sown."—DANVERS, 1877.
'61-62	<i>India.</i> Considerable scarcity of food in Kach and various other districts of the Bombay Presidency, owing to scanty and unseasonable rains in 1861, and to short fall in the early part of 1862.
'66	<i>India.</i> Awful famine in the Lower Provinces of Bengal, Orissa, Behar, &c.; 1,500,000 persons reported to have perished. "The total quantity of rainfall for the year [1865] was not unusually small in most of the districts of Bengal, but it fell abnormally and out of time. Much rain fell early in the season, before the usual time for sowing, while the later rains, which are usually expected in the end of September and October, failed."—DANVERS, 1877.
'68-70	Great scarcity also in <i>Madras</i> Presidency, through many districts. <i>India.</i> Famine and scarcity in a considerable number of the north-west provinces, including Delhi, Meerut, &c. This was occasioned by failure of the harvest of 1868, following upon the inferior crop of 1867.
'71-72	<i>Persia.</i> Severe famine.
'74	<i>India.</i> Bengal; famine arising from drought. The Government took early measures, and at a cost of 6,500,000 <i>l.</i> organised a system of relief. About 1,000,000 tons of rice were carried into the distressed districts; and about 100,000 remained after relief concluded. Mr. Danvers gives us the following details respecting this famine:— "During three successive years the weather in Bengal had been abnormal. In 1871 the rain was excessive, but the crops were good. In 1872 the rain was deficient, but although extraordinarily scanty, it was happily distributed both in time and place, and the crops were good in Bengal, and not bad in Behar. <i>The year 1873 was again dry, almost beyond precedent</i> , and what rain there was was unfortunately distributed. South of the Gauges it was excessive; but in North Behar, and almost the whole of Bengal, the rain was below the average. Coupled with deficient rainfall, the monsoon of 1873 was abnormally hot In January, 1874, it was reported that the frost and west winds were drying up the crops in Patna. The famine reached its culminating point in April and May."
'74-75	<i>Asia Minor.</i> Severe famine; great efforts made by Turkey to alleviate; also subscriptions raised in England. Deaths up to July, 1874 (<i>Times</i> , 31st March, 1875), 150,000.
'77	<i>India.</i> <i>Madras</i> Presidency. One of the most extended famines on record. The cost to the Government of India, in remedial measures and loss of revenue, is estimated at 10,000,000 <i>l.</i> The actual amount of mortality occasioned is difficult to determine, the estimates vary so much. Cholera prevailed in some of the famine districts, and added greatly to the number of deaths. The Mansion House Relief Fund, instituted by the lord mayor (Sir Thomas White), exceeded half-a-million sterling. Mr. Danvers gives the following details regarding the meteorological incidents associated with this famine: "The season of 1874 was generally good, but in parts it was unfavourable. In 1875 the season was in many places unpropitious. In 1876 the south-west monsoon, or summer rains, were deficient throughout the greater part of the <i>Madras</i> Presidency, and in the Bombay district of Poona. In the northern portions only of the <i>Madras</i> Presidency was the rainfall ordinarily propitious. The north-east monsoon, or autumn rains, failed still more disastrously. In October the whole of the nine districts of the Bombay Deccan were threatened with a serious famine, nearly all the monsoon crops

TABLE I.—*Chronology of Famines—Contd.*

A.D.	India—Contd.
1877.....	having perished, and there having been no later rains to admit of sowing the rabi. . . . The spring and summer rains again failed in 1877. . . . and added to this, the rainfall was short almost all over northern India.
'77	<i>Egypt.</i> Short rainfall and low Nile ; great scarcity.
'77	<i>Morocco.</i> Drought of preceding season produced famine.
'77	<i>Brazil.</i> Great drought in northern provinces, and upwards of 200,000 of the population exposed to famine.
'77-78	<i>North China.</i> A telegram dated 26th January, 1878, says : "Appalling famine raging throughout four provinces North China. Nine million people reported destitute. Children daily sold in markets for [raising means to procure] food. Foreign Relief Committee appeal to England and America for assistance." Total population of districts affected, 70 millions. Mr. Fredk. H. Balfour, of Shanghai, said : "The people's faces are black with hunger ; they are dying by thousands upon thousands. Women and girls and boys are openly offered for sale to any chance wayfarer. When I left the country, a respectable married woman could be easily bought for six dollars, and a little girl for two. In cases, however, where it was found impossible to dispose of their children, parents have been known to kill them sooner than witness their prolonged sufferings, in many instances throwing themselves afterwards down wells, or committing suicide by arsenic."
	"Lord Derby received a report drawn up by Mr. Mayers, Chinese Secretary of the Legation at Peking, upon the distress which the drought of the last two years has caused in the northern and central provinces of China. This famine, it seems, has been most severely felt in the district furthest from the coast. With the exception of Chefoo, and, in a lesser degree, Tien-tain, no foreign settlement has come directly into contact with the misery which has been described as existing in the interior, nor are any immediate traces of it visible in the neighbourhood of the capital. The apparent cause was disturbance in the usually unfailing regularity of the summer monsoons. The spring and summer of 1876 were marked in the southern maritime provinces, Kwangtung and Fukien, and in a less degree also along the coast as far north as Ningpo, by an excessive rainfall, causing in the two provinces above-named disastrous floods and much destruction of crops. In the north, on the contrary, from the Yangtze to the neighbourhood of Peking and thence eastward to the borders of Corea, an unusual drought was experienced."— <i>Times</i> , 13th March, 1878.
	Further papers on this famine were presented to Parliament, 2nd July, 1878. The number of souls for whom relief is required is said to be between 3 and 4 millions. One point brought out is the enormous cost of transporting supplies to the province of Shansi, where a mountain range has to be crossed and a distance of some hundreds of miles to be traversed by carts. Mr. Mayers says the reported cost of transporting these supplies to Shansi would be about four taels per picul, or, say, 12 <i>l.</i> sterling per ton. Mr. Hugh Fraser sends from Peking, 18th January, the translation of a memorial addressed to the throne by Yen King-Ming, "Special High Commissioner for the Superintendence of the Arrangements for Famine Relief in Shansi. The commissioner dwells upon the painful scenes he has witnessed at every stage of his journey, in the course of which his chair has continually been surrounded by crowds of the famine-stricken population imploring relief, to whom he has administered comfort in soothing words, assuring them of the Imperial sympathy. The roads are lined with corpses in such numbers as to distance all efforts for their interment, while women and children, starving and in rags, know not where to look for the

TABLE I.—*Chronology of Famines—Contd.*

A.D.	<i>North China—Contd.</i>
1877-78	means of keeping body and soul together. The memorialist, his heart wrung with despairing pity, cannot but ask why has a calamity so awful as this been visited upon the people. He can only ascribe it to his own failure in the due discharge of his duty, and he feels that his shortcoming admits of no excuse. In reply, the Grand Council has received a rescript expressing profound sympathy with the sufferings of the people as reported in this memorial, and directing that all that is possible for their relief be done, in consultation with the governor of the province."
	<i>Note.</i> —The Empire of China has long been subject to the most serious famines; but of these we have found no details available.
'78	<i>Morocco.</i> A correspondent of the <i>Jewish World</i> , residing at Mogador, and carrying on business in that city as a merchant, writes:—"I regret to say that from want of rain the southern part of Morocco, comprising the provinces of Soos, Haha, Antuga, and the Morocco districts, is suffering from famine, every description of food being exceedingly scarce, and the pauper population of Mogador, always disproportionately large, forming about one-third of its entire inhabitants, is being rapidly increased by numerous famished Jewish and Moorish families from the adjacent districts. It is a fearful sight to see some of them—mere living skeletons. The Jews are behaving well, and have collected large sums and distributes them; they have now agreed to pay a tax of 3½d. on every package of food and grain imported, and the money is being distributed weekly among the Jewish poor. The Moors, poor creatures, get no assistance from the Government, and little or nothing from their co-religionists; they are mainly dependent upon the charity they receive from the Jews and a few Christians. Unless this Government quickly does something to assist the sufferers, I fear that the limited resources of the merchants here will necessarily fail under the continual drain, and render them unable to assist the increasing number of poverty-stricken people. There is no kind of business now doing, except in articles of food, and consequently the working classes have nothing to do. They are selling their clothes and furniture to obtain food, and when these have gone the amount of destitution will be increased. I fear, unless relief comes from the Government here, or from some charitably-disposed persons, that I shall have to relate the most distressing accounts. Already some cases of actual starvation have occurred among the Moors. If you could see the terrible scenes of misery—poor starving mothers, breaking and pounding up bones they find in the streets, and giving them to their famished children—it would make your heart ache. Raise a few pounds if you can, and if you can do so lay it out in rice at the wholesale brokers, and have it shipped by the steamers leaving England."
'78	<i>Cashmere.</i> Severe famine, regarding which, however, no exact details have come to hand.

It is seen from the preceding table (which includes in the whole over 350 famines in various parts of the world) that famines have given rise to several of our more important and distinctive institutions—as the POOR LAW in England in 1586, and its equivalent in India in 1781-83; as to Government RELIEF WORKS, *vide* famine in India in 1790-92, since followed out in various parts of the empire.

But in truth they gave rise to our CORN LAWS, see first record of importation of grain during the famine, 1258. I expect to be able

to show, in a later part of this paper, that famines gave rise to imperial restrictions on the price of FOOD as early as about the twelfth century. The literature of famines will be passed under review in the second portion of this paper. The subject of *Indian famines*, which occupy such a prominent place during the last century of the table, will be spoken of specially later in this paper.

Enumeration of the Causes of Famines.

A careful analysis of the preceding table, and of the authorities from which it is compiled, reduces the causes of famines to the following:—

1. RAIN, by excess of which, producing FLOODS, the soil becomes saturated, and decomposition of the seed is produced.

2. FROST, whereby either the process of sowing is retarded, or rendered impossible, or the vitality of autumn-sown seed becomes destroyed; whereby also the transport of grain was in former periods rendered impossible.

3. DROUGHT, whereby the natural moisture essential to vegetable production is withheld from the soil.

4. METEOROLOGICAL PHENOMENA, other than the preceding, as comets, hail, earthquakes (the latter frequently leading to irruptions of the sea, &c.).

5. INSECTS, as locusts, grasshoppers, ants, &c. VERMIN, as rats, &c., destroying vegetation.

6. WAR, whereby cultivation is prevented, or the crops wilfully destroyed, or, as to particular towns and localities, where a blockade has been established.

7. DEFECTIVE AGRICULTURE, arising either from ignorance, indifference, or unsuitability of climate or location.

8. DEFECTIVE TRANSPORT, or bad roads, want of canals, or shipping, or wilful obstruction.

9. LEGISLATIVE INTERFERENCE, whereby the natural course of supply and demand has been interfered with or interrupted.

10. CURRENCY RESTRICTIONS, including debasing the coin, whereby either direct or indirect influences may be brought into play.

11. SPECULATION, known technically as “engrossing,” whereby the necessary supply of food for the people has been “forestalled.”

12. MISAPPLICATION OF GRAIN, such as its excessive use in brewing, distilling, or by burning, whether wilfully or by misadventure.

At a first glance these causes arrange themselves into two entirely distinctive divisions:—1. NATURAL CAUSES, or those beyond human control. 2. ARTIFICIAL CAUSES, or those within human control. The first five causes named rank almost entirely under the first division. The remainder are all subject to human control, although

not always immediately so, at least by those most affected at the moment. I shall deal with the natural or unavoidable causes first.

1. RAIN.—In temperate climates like our own, an excess of rain very frequently leads to famine. The ground becomes sodden, and it is thus impossible to get upon it for purposes of efficient cultivation; or the seed having been deposited, is destroyed. Or again, if the rainfall be in the latter half of the year, the grain is not sufficiently ripened for the harvest; or if it shall have been cut, then it becomes stacked without being properly dried, by which means mildew is engendered, and it moulders and spoils. It is remarkable to notice what a large proportion of the famines in the three divisions of the United Kingdom have been occasioned by rains. Improved cultivation of the land, as good drainage, &c., lessen these evils.

Unfortunately in this country we have no meteorological records by which the rainfall over any lengthened period of time can be ascertained. In the absence of these, I am driven to another expedient, and this is to bring into requisition a table of *floods*. The effect of this table is to widen our view of the causes from which famines may arise and have arisen. Many of the statistical details contained in this table have a value quite apart from any immediate bearing upon famines. I have extended it to all parts of the world, in order that its range may be identical with that of the famine table.

TABLE II.—Of the Floods and Inundations of the World.

B.C. Date not fixed.	The <i>Deluge</i> , the first mention of which occurs in Gen. iv, 7—22, where is described the directions received by Noah relative to the construction of the ark. The commencement of the Flood is related in Gen. vii, 10—12. The waters increased for 40 days (v. 17), and remained upon the earth 150 days (v. 24), at the end of which time the ark rested on the mountain of Ararat (Gen. viii, 4). This was regarded by the narrators of the event as a general deluge—a fact now very much doubted on scientific grounds. The date of the occurrence ranges according to the estimates of different authorities from B.C. 3246 down to B.C. 2104.—TOWNSEND'S <i>Dictionary of Dates</i> .
1760	<i>Attica</i> (Greece). A flood known as the Deluge of Ogyges. It was occasioned by the sea being driven in by winds, and is sometimes spoken of as the "Second Deluge."
1504	<i>Deucalion</i> (Greece). Great flood from rain, which extended all through Thessaly. It is sometimes spoken of as the "Third Deluge."
322	<i>Ephesus</i> (Asia Minor) was destroyed by an inundation. Rebuilt on a more elevated site B.C. 300.
241	<i>Rome</i> . The overflowing of the Tiber is said to have swept away all the houses and buildings in the lower part of the city. The river overflowed again B.C. 54 and 27. (See A.D. 15.)
A.D.	
7	<i>England</i> . Great flood in valley of the Thames; many persons drowned, and cattle destroyed.
9	<i>England</i> . Great overflow of Humber, flooding the country all round.

TABLE II.—*Of the Floods and Inundations of the World—Contd.*

A.D.	
14.....	<i>England.</i> Overflow of Severn; great damage.
15.....	<i>Rome.</i> The Tiber again overflowed, and did such serious damage that it was proposed in the Senate to diminish its waters by diverting some of the chief tributaries. (B.C. 241.)
29.....	<i>England.</i> Great overflow of the Trent.
33.....	" Overflow of the Dee; great damage done to Chester.
37.....	" Medway overflowed, and drowned many cattle.
48.....	" The Thames overflowed, the waters extended through four counties; 10,000 people drowned, and much damage to property.
68.....	<i>England.</i> Volcanic eruption, followed by inundation of sea. Isle of Wight separated from Hampshire.
80.....	<i>England.</i> Great overflow of the Severn, many people and much cattle drowned.
86.....	<i>England.</i> Great overflow of the Medway. Loss of life.
95.....	" Humber overflowed; damage extended over 50 miles of country.
115.....	<i>England.</i> The Severn again overflowed; great loss of life and cattle.
125.....	" The Humber again overflowed.
131.....	<i>Dorsetshire</i> (England). Inundation of the sea, which came 20 miles inland. Great loss of life and property.
155.....	<i>Edinburgh</i> (Scotland). Considerable damage from flood.
214.....	<i>England.</i> Trent valley overflowed. Great destruction, extending 20 miles from ordinary course of stream.
218.....	<i>Northumberland.</i> Great flood in Tweed; much damage.
245.....	<i>Lincolnshire.</i> An eruption of the sea laid under water many thousand acres.—CAMDEN.
250.....	<i>England.</i> The Ouse overflowed, and drowned many people and cattle.
268.....	<i>England.</i> The Humber overflowed and did great damage.
317.....	<i>Isle of Thanet</i> (Kent). Flooded. Loss of life and property.
323.....	<i>England.</i> The inhabitants of Ferne Island (off coast of Northumberland) destroyed by inundation of sea.
330.....	<i>England.</i> Irruption of the sea in Lancashire.
336.....	" Great overflowing of the Tweed.
352.....	" Severn valley flooded; great loss.
358.....	<i>Cheshire</i> (England). Inundation from the sea; several thousands [about 5,000] of people drowned, and much damage.
365.....	<i>Egypt.</i> An inundation consequent upon an earthquake destroyed many of the inhabitants.
368.....	<i>Sicily.</i> Inundation from sea; great destruction.
387.....	<i>Cheshire.</i> Overflowing of the Dee, and great destruction.
393.....	<i>Egypt.</i> Unusual overflow of Nile; great damage.
419.....	<i>Hampshire.</i> Inundation of sea and great destruction, near Southampton.
441.....	<i>Wales.</i> The sea made great inroads, both north and south, many people and much cattle drowned.
469.....	<i>Constantinople.</i> Much flooded, consequent upon four days' incessant rain.
479.....	<i>London.</i> The Thames for many miles above and below much flooded; great damage.
487.....	<i>England.</i> The Severn valley again overflowed; great damage.
525.....	" The Trent overflowed. Great number of cattle drowned.
525.....	<i>Edessa</i> (Mesopotamia), sometimes called "Antioch of the Fair Streams." A destructive flood did considerable damage to the city.
529.....	<i>England.</i> The Humber overflowed. Many people and cattle drowned.
536.....	<i>Northumberland.</i> The Tweed again overflowed. People and cattle drowned.
540.....	<i>France and Italy.</i> Great floods from rains.
552.....	<i>Greece.</i> Inundation from the sea; part submerged.
553.....	<i>Scotland.</i> Violent rain storms extending over five months.

TABLE II.—Of the Floods and Inundations of the World.—Contd.

A.D.	
564	<i>England.</i> Great rain floods.
570	<i>Italy.</i> Great rains and floods.
575	<i>England.</i> Parts of Essex, Suffolk, and Norfolk inundated from the sea.
579	<i>France and Italy.</i> Great rains and floods.
580	<i>Anglesea</i> (Wales). Much damaged by the sea.
590	<i>Italy.</i> Great floods from tempest; followed by plague.
634	<i>Ireland.</i> Floods in Munster.
649	<i>Cheshire and Lancashire</i> (England). Greatly damaged by inundations of sea.
669	<i>Kent</i> (England). The Medway overflowed; great damage.
684	<i>Japan.</i> More than 500,000 acres of land in the Isle of Sikokf swallowed up by inundation of the sea, following earthquake.
685	<i>Ireland.</i> Great inundation from the sea.
690	<i>Italy, Venice, Liguria.</i> Great floods from violent rain storms.
693	<i>Ireland.</i> Floods of rain in Leinster.
717	<i>Rome.</i> The Tiber greatly overflowed from rains.
719	<i>Ireland.</i> A rainy summer; great inundations of the sea.
730	<i>Edinburgh</i> (Scotland). Great damage by rain or inundation.
738	<i>Glasgow.</i> Great floods; more than 400 families drowned. [Some authorities give the date 758.]
776	<i>Ireland.</i> Great fall of rain, and consequent floods.
785	" "A flood in Darinis."
788	<i>Italy.</i> The Tiber much flooded by rains.
813	<i>England.</i> Great overflow of the Severn; 2,000 people and 7,000 cattle drowned.
818 or 820	<i>France.</i> Great rains and floods.
834	<i>Northumberland.</i> Tweed overflowed and extended 30 miles round. Loss of life and cattle.
840	<i>Germany.</i> The Rhine flooded from rains.
856	<i>England.</i> Great rains and floods, followed by epidemic of quinsy.
861	<i>Kent</i> (England). Floods in Medway. Great loss of cattle.
864	<i>England.</i> The Humber again greatly flooded.
876	<i>Saxony.</i> Great rains in June. Extended damage.
885	<i>Cheshire.</i> The Dee greatly overflown; many villages injured.
912	<i>Saxony.</i> Flooded by rain, "after a comet."
918	<i>Scotland.</i> Rains extending over five months; consequent floods.
918	<i>Ireland.</i> A great flood.
935	<i>Southampton.</i> Great floods; many people drowned.
942	<i>England.</i> December. Great rains and floods, "after comet in November."
942	<i>Ireland.</i> Great flood of the Shannon.
952	<i>Bagdad</i> (Asiatic Turkey). Half the city inundated from great overflow of the Euphrates.
959	<i>Bagdad.</i> Nearly three-fourths of the city inundated from a serious overflow of the Euphrates.
968	<i>Persian Gulf.</i> Severe irruption following earthquakes. Several cities destroyed, and new islands formed.
973	<i>England.</i> Thames greatly overflown; many people drowned.
989	" Floods all the winter.
1012	" and <i>Germany.</i> Great inundations of the sea.
'13	" Earthquake, floods, thunder, lightning, hurricane.
'14	" Great inundations of the English coasts; "a number of seaport towns demolished."
'16	<i>Ireland.</i> Excessive rains and floods—producing cattle mortality.
'20	<i>England.</i> Great floods followed by plague.
'81	" Extended general floods from rains.
'40	<i>Germany.</i> Great floods.
'45	<i>Flanders.</i> Inundations from the sea.
'46	<i>Severn Valley</i> (England). Great rain floods; loss of cattle.

TABLE II.—Of the Floods and Inundations of the World—Contd.

A.D.	
1076	<i>Bagdad.</i> The Tigris overflowed and inundated Bagdad.
'86	<i>England.</i> Heavy floods from rain.
	"In the twentieth year [of William the Conqueror] there fell such abundance of rain that the rivers did greatly overflow in all parts of the Realm. The springs also rising plentifully in divers hills, so softened and decayed the foundations of them, that they fell down, whereby some villages were overthrown. By this distemperature of weather much cattle perished, much corn upon the ground was either destroyed, or greatly impaired. Thereupon ensued first a famine, and afterwards a miserable mortality of men" [Plague]— <i>Harleian Miscellany</i> , iii, p. 167.
'88	<i>Bagdad.</i> The Tigris again overflowed and did much damage.
'90	<i>Constantinople.</i> Great floods.
'93	<i>Ireland.</i> "Great rains and inundations in summer and autumn."
'93	<i>England.</i> Great floods, and afterwards severe frost.
'94	<i>Ireland.</i> "Great inundations in all Ireland."
'98 or (1100)	<i>English Channel.</i> Earl Godwin's lands, exceeding 4,000 acres, overflowed by the sea, and an immense sand-bank formed on the coast of Kent, now known as the Godwin Sands.—CAMDEN.
1099	<i>England.</i> Rains and sea floods, "fatal to much people and cattle." Thames much flooded on festival of St. Martin.
1100 or (1108)	<i>Flanders.</i> A terrible inundation forced many of the inhabitants to leave the country. Some settled in England. Nearly the whole of this country is believed to have been covered by the sea in early times. On this occasion the town of Ostend was immersed.
'06	<i>England.</i> Great floods, followed by famine.
'06	" Inundation from the sea.
'18 or 19	" Constant floods all the year; "no corn sown or reaped."
'25	" Great flood on St. Lawrence's Day.
'33	<i>France.</i> Great floods from rain.
'34	<i>Flanders.</i> Inundation from the sea.
'52	<i>Germany.</i> Great floods on the Rhine from rains.
'56	<i>England.</i> Rain floods, lasting all the harvest.
'57 or 58	<i>Italy.</i> Great overflow of the Tiber. <i>Normandy.</i> Great floods.
'61	<i>Sicily.</i> Inundation of the sea; drowned 5,000 persons; "floods in many rivers, multitudes of people lost." (1165.)
'62	<i>Holland.</i> Inundation from the sea; many people and cattle lost.
'65	<i>Sicily.</i> Irruption of the sea; 12,000 people drowned. (1161.)
'70	<i>Holland, Friesland, and Utrecht.</i> Terrific flood. In the latter province the water rose to so great a height that the people were able to catch fish with nets within the walls of the town.—DAVIES' <i>Holland.</i>
'71	<i>England.</i> Inundation of the sea; harvest destroyed in many places.
'72	<i>Ireland.</i> "Great floods destroyed numbers of men."
'72	<i>Germany.</i> Great floods on the Rhine.
'73	<i>Holland.</i> Great flood [? inundation] which considerably extended the limits of the Zuyder-zee.
'76	<i>Lincolnshire (England).</i> Inundation from the sea; also in <i>Holland.</i>
'79	<i>England.</i> "Many floods from a most severe winter."—SHORT.
'87	Great floods.
'88	" Inundations of sea "killed very much people and cattle."
'96	<i>England.</i> Great floods in March from rains.
'99	" Serious floods from rain.
1208	<i>France.</i> Terrible rains and great floods, destroying bridges, houses, &c. "Greatest ever seen in France."—SHORT.
'09	<i>England.</i> Great floods on St. Nicholas Eve, "after a tempest of thunder and lightning." December.

TABLE II.—Of the Floods and Inundations of the World—Contd.

A.D.	
1210 or 12	<i>Perth</i> (Scotland). Great flood from overflow of Tay and Anan rivers: many houses washed down and people drowned. The king lost his youngest son and nurse in it; and twelve of the court ladies were drowned. The king and his brother with great difficulty escaped in a boat.
'12	<i>Sicily</i> . Inundation from the sea, "thousands of people swept away by it."
'18	<i>England</i> . Great floods in the night in winter.
'19	<i>Nordland</i> (Norway). "The St. Lawrence Lake broke out and drowned 36,000 people, besides cattle."
'20	<i>Poland</i> . Floods from constant rains; <i>Friesland</i> , inundations, October.
'22	<i>England</i> . High tides; great damage. Also continuous rain storms. " In the "seventh year of Henry III, on Holy Rood Day, was a great thunder and lightning tempest throughout all England, and such great floods of water followed with great winds and tempests, which continued till Candlemass, that the year following wheat was sold for 12s, the quarter."—PENKETHMAN.
'28	<i>Friesland</i> . Irruption of the sea, 100,000 people drowned.
'30	<i>Italy and France</i> . Great overflow of the Tiber; floods in France.
'32	<i>Austria</i> . Great overflow of the Danube.
'40	<i>England</i> . The Thames greatly flooded from rains. Extended above 6 miles at Lambeth.
'47-50	<i>England</i> . Several inundations of the sea; great losses.
'51	" Tides rise 6 feet higher than usual.
'51	<i>Ireland</i> . 29th June. Great inundation of the Shannon.
'57	<i>England</i> . July. Great floods from rains.
'60	<i>Germany</i> . Great floods on the Rhine.
'66	<i>Scotland</i> . Great inundations of the Tay and Forth from the sea.
'69	<i>England</i> . February. Great floods from thaw.
'76	" Great floods from the sea, and from rains.
'76	<i>Bagdad</i> . The city again inundated after appearance of red flame.
'77	<i>Holland</i> . Great inundations at <i>Friesland</i> , forming the Dollart Sea.
'78	<i>Italy</i> . Great overflowing of the Tiber.
'80	<i>England</i> . Great floods all the summer; especially in August.
[? '87]	<i>Winchelsea</i> (England). Great inundation of the sea; more than 300 houses swept away. "Charter granted for erection of new port."
'86-87	<i>Holland</i> . A dreadful storm, laid the whole country on both sides of the Zuyder-zee under water. To such a height did the water rise that Count Florence took advantage of the circumstance to subdue the inland towns by armed vessels called "cogs."—DAVIES' <i>Holland</i> .
'87	<i>England</i> . Winter excessively rainy; great floods. 1st June. Sea broke in from the Humber to Yarmouth, forced by the winds. In December on Suffolk and Norfolk coasts. Plague all the year.
'87	<i>Salandria</i> (?). Fifteen islands submerged by the sea, 15,000 people drowned.
'89	<i>England</i> . Great hailstorm, followed by heavy rains, greatly affecting the next year's harvest.—PENKETHMAN.
'91	<i>Damascus</i> (Syria). Inundated by overflowing of streams.
'99	<i>England</i> . Flood after a comet. In November inundation from the sea, in the Thames. "In December great calm, heat, and clearness."—SHORT.
1304	<i>Damascus</i> . Again inundated.
'15	<i>England</i> . Great rains and floods during harvest; much grain spoiled.
'30	<i>England</i> . Heavy rains; grain did not ripen; harvest not commenced till Michaelmas.
'33	<i>Florence</i> . November. Great overflow of the Arno.
'35	<i>England</i> . Continued rain storms; corn spoiled.

TABLE II.—Of the Floods and Inundations of the World—Contd.

A.D.	
1338	<i>England.</i> Continuous rain from beginning of October to December.
'39	22nd March. Great flood in Tyne; many lives lost.
'48	" Violent rains from Midsummer to Christmas, "so that there was not one day and night dry together."
'50	<i>England.</i> "Floods, storms, tempests, and fiery meteors in the air."
'65	" Violent rain storms.
'96	<i>Holland.</i> "Another deluge," which formed the Marsdiep, separated the islands of Texel, Vlielandt, and Wieringen from the mainland, and submerged other districts. "This first raised the commerce of Amsterdam."
1404	<i>England.</i> An inundation from the sea.
'12	" 12th October. "Sea flooded thrice without ebbing."
'21	<i>Holland.</i> Dreadful and most destructive inundation, overwhelming seventy-two villages, twenty of which were never recovered. The loss of life [nearly 100,000 persons on some authorities] and property was immense; many noble families were reduced almost to beggary. By this inundation the Biesbosch was formed, and the town of Dordrecht separated from the mainland of Holland. [Some authorities give the date of this event as 1446.]
'76	<i>Istula</i> (? <i>Vistula</i> , Germany). Flood of the.—SHORT.
'83	<i>England.</i> The Severn overflowed during ten days, and carried away men, women and children in their beds, and covered the tops of many mountains; the waters settled upon the lands, and were called "The Great Waters" for a hundred years after.—HOLINSHED.
'91	<i>Ireland.</i> Great rain and floods all the summer; called the "Dismal Year."
1501	<i>Germany.</i> The Elbe overflowed. 14th August. The Albis ditto.
'11	<i>Ireland.</i> Great inundation, which produced considerable destruction.
'15	<i>Germany.</i> "All Germany like a sea, and Cracovia flooded."—SHORT.
'21	<i>Holland.</i> 1st November. "A dire inundation of the sea, and 100,000 drowned."—SHORT.
'23-26	<i>Turkey.</i> The rivers greatly swollen, and pestilential diseases prevalent.
'24	<i>Naples.</i> Terrible inundation.
'26	<i>England.</i> 18 Henry VIII. "In November, December, and January fell such abundance of Reine that thereof ensued great Floods, which destroyed Corne-fields, Pastures and Beasts. Then was it drie until the 12th April; and from that time, it rained every day and night, till the 3rd June: whereby Corne failed sore in the yeare falling."— <i>Old Chronicle.</i>
'27	<i>England.</i> Great flood.
'29	<i>Switzerland.</i> June 13 or 14. Great flood at Basle. <i>England,</i> 2nd October. Great flood in Thames.
'30	<i>England.</i> Great floods all the year. <i>Rome.</i> 8th October. Great flood.
'32	<i>Holland.</i> Great floods.
'34	<i>Poland.</i> Extensive floods.
'47	<i>Tuscany.</i> 12th August. Great floods.
'49	<i>England.</i> 13th June. Severe rain floods.
'50	" "The Thames flowed thrice in nine hours."—SHORT.
'51	<i>Marpurg</i> [? Marpod or Mariapod, Austria]. January and February. Great floods.
'52	<i>Budissina</i> (Saxony). 13th August. Great floods.
'53	<i>Germany and Holland.</i> 19th January. Great floods in the Rhine.
'54	<i>Ireland.</i> Perpetual rain all winter; great floods.
'55	<i>England.</i> 21st September. Great floods in the Thames.
'57	<i>France.</i> 10th September. Floods near the district of Languedoc.
'61	<i>Brussels.</i> 21st April. Great floods.
'64	<i>England.</i> 20th September. The Thames greatly overflowed.

TABLE II.—Of the Floods and Inundations of the World—Contd.

A.D.	
1565	<i>Louvain</i> (France). Great inundation from the sea; wind.
'69	<i>England and France</i> . Great floods.
'70	<i>England</i> . 5th October. Inundation from the sea.
'70	<i>Holland</i> . Inundation. A strong north-west wind occurring during the high tides, drove the sea with such violence against the dykes that several of them were broken down. The waters rush in on every side, and rolling forward with resistless fury, swept away houses, trees, men, and cattle, in one universal ruin. Entire villages were destroyed. The number of lives lost in Friesland alone was estimated at 20,000; and was very extensive in other provinces. "The damage to property incalculable." The Spaniards (then at war with the Netherlands) imputed the flood, which occurred on All Saints' Day, to the vengeance of God upon the heresy of the land; the Netherlands looked upon it as an omen portending some violent commotions.
'71	<i>Flanders</i> . August. Great floods; also in <i>France</i> and <i>Germany</i> .
'73	<i>Holland</i> . 1st September. Inundation from the sea.
'74	<i>Leyden</i> (Holland). A violent equinoctial gale broke through the dykes. By this means the city, then besieged by the Spaniards, was saved.
'79	<i>England</i> . September and October. Great inundation from the sea and from rains.
'94	<i>England</i> . 36 Elizabeth. "In May fell many great showers of raine, but in June and July much more, for it commonly rained day and night till St. James's eve; and on St. James's-day in the afternoon it began again, and continued for two days together. Notwithstanding there followed a fair harvest. But in September great raines raysed high waters, such as stayed the carriges, and bore down bridges, as at <i>Cambridge, Ware</i> , and elsewhere. Also graine grew to be a great price—a bushell of wheat at 6s., 7s., or 8s., &c., which dearth happened more through the merchants' overmuch transporting than the unseasonableness of the weather past."—PENKETHMAN.
'95	<i>Germany</i> . Considerable floods.
'96	<i>England</i> . "Floods all summer."—SHORT.
'98	<i>Rome</i> . Considerable floods.
'99	<i>England</i> . November. Floods.
1606	" 29th March. General floods.
'07	" The waters rose above the tops of the houses, and upwards of 100 people perished in Gloucestershire and Somersetshire. Flood also in Coventry, which destroyed 257 houses. The author of a rare tract, "God's Warning, &c.," published this year, says:— "Upon Tuesday, being the twentieth of Iannary last past 1607, in diuers places, as well in the westerne parts of England, as also in diuers other places of the realme, there hapened such an ouerflowing of waters, such a violent swelling of the seas, and such forcible breaches made into the firme land, namely, into the bocomes of these counties following, that is to say, in the counties of Gloucester, Somerset, together with the counties of Munmouth, Glamorgan, Carmarthen, and diuers and sundry other places of South Wales; the like never in the memory of man hath ever bin seene or heard of; the suddayne terror whereof strooke such an amazed feare into the hearts of al the inhabitants of those parts, that eury one prepared him selfe ready to entertayne the last period of his lives distruction, deeming it altogether to be a second deluge, or an universal punishment by water."— <i>Harleian Miscellany</i> , iii, 64—5.
'08	<i>France</i> . The Loire overflowed its banks and caused great destruction of property.
'11	<i>England</i> . Floods from rain all November and December.
'13	<i>Germany, France, &c.</i> All grain destroyed by rains.

TABLE II.—Of the Floods and Inundations of the World—Contd.

A.D.	
1614	<i>Lincolnshire</i> (England). The sea came 12 miles inland.
'16	<i>Manchester</i> . "An extraordinary flood."
'17	<i>Catalonia</i> (Spain). Great floods; 15,000 people perished.
'19	<i>Thuringia</i> (Germany). July. Great rain floods.
'20	<i>Germany</i> . November. Great floods.
'23	<i>Austria, Hungary, &c.</i> The Danube greatly overflowed.
'26	<i>England</i> . 6th June. Great floods.
'27	<i>Austria; Danube</i> . September. "A cloud loaded with a sea of water burst."
'27	<i>Apulia</i> (Naples). Great floods.
'29	<i>Mexico</i> , city of, deluged from the mountains. The effects continued for several years.
June 20	
1630	<i>Scotland</i> . Great floods in the Clyde.
'33	<i>Cork</i> (Ireland). A "prodigious flood of the sea" swept away some of the public buildings and bridges.
'37	<i>East Friesland</i> . 1st September. Great floods.
'39	<i>England</i> . October. Great floods.
'40	<i>Dresden</i> . 23rd September. Great floods.
'42	<i>Kaifong</i> [or Cai-fong-fon] (China). Besieged by the rebels, and the embankments destroyed. It was computed that 300,000 perished by this inundation.
'43	<i>Thuringia</i> (Austria). Great floods.
'44	<i>Spain and Holland</i> . Considerable floods.
'46	<i>Holland, Friesland, Zealand, &c.</i> Great inundations. Some authorities state that as many as 110,000 persons were drowned.
'47-48	<i>England</i> . "This was a most exceedingly wet year: neither frost nor snow all the winter for more than six days in all. Cattle died everywhere of a murrain."—EVELYN'S <i>Diary</i> .
'49	<i>England</i> . Very general floods.
'55	" January. Considerable floods.
'56	<i>Rome</i> . Floods.
'58	<i>Faversham</i> (Kent). Considerable floods.
'60	<i>England</i> . 11th November. Great floods in Thames valley.
'61	<i>Kent</i> . Considerable floods.
'65	<i>England</i> . Great flooding of rivers; and inundations from the sea.
'66	" October. Great floods.
'70	<i>Bridgewater</i> (Somerset). Great floods.
'78	<i>Middlesex</i> (England). Considerable floods.
'80	<i>Oxford</i> . June. Great floods.
'80	<i>Ireland</i> . "An inundation near Londonderry."
'82	<i>England</i> . "Rain, hail, floods, all the summer."—SHORT.
'86	<i>Yorkshire</i> . A rock opened and poured out water to the height of a church steeple.— <i>Philosophical Transactions</i> .
'87	<i>Ireland</i> . Excessive rains; great flood in Dublin.
1705	" Flood at Limerick; "half Limerick drowned."
'05	<i>Europe</i> . Great rains and floods over continent of Europe.
'07	<i>England</i> . Great inundation at Dagenham (Essex), May, continuing over several years.
'11	<i>Mobile</i> (U.S.A.). City almost destroyed by inundations at the mouth of the Mobile river.
'17	<i>Zealand; Hamburg</i> . Inundation from the sea in Zealand; 1,300 persons drowned. "Incredible damage done in Hamburg."
'20	<i>Northampton</i> (England). A great flood did considerable damage.
'21	<i>Adige</i> (Italy). Terrible floods occurred in the valley through which this river (the ancient <i>Athesis</i>) runs.
'22	<i>Yorkshire</i> . Extensive rains and great damage; known as "Ripon Flood." (See 1771.)
'23	<i>Madrid</i> (Spain). Great floods; many persons of distinction drowned.
'24	<i>Adige</i> (Italy). Great floods in the valley of the.
'26	<i>Europe</i> . Great inundations and floods "all over Europe."

TABLE II.—Of the Floods and Inundations of the World—Contd.

A.D.	
1729	England and Ireland. Great rains and floods.
'30	Chili. The city of Concepcion inundated.
'34	Belper (Derbyshire). A flood carried away the bridge over the Derwent and did other damage.
'40	England. Great floods from the breaking up of frost and snow of the preceding severe winter.
'40	Dublin. Heavy rains and great floods; shipping at Dublin injured.
'42	Limerick (Ireland). Great flood; much damage.
'45	Dublin. Great flood; serious damage to bridges, &c.
'52	Wales. 19th September. Great rain storm: 10,000 sheep drowned.
'53	Ireland. Great inundations through the country.
'58	Germany; Holland. Great overflow of the Rhine.
'54	England and Scotland. Great rain storms in early spring.
'54	Germany and Holland. Serious floods.
'56	England and Europe. Great floods.
'61	" Great rains and floods.
'61	Ireland. Great floods; especially in Cork and Dublin.
'61	Europe. Great rains and floods in south of Europe.
'62	England. Great flood in the Thames Valley, and other parts of England.
'62	Dublin. 21st October. Serious flood and much damage.
'62	Spain. Great destruction at Lisbon.
'62	Burhanpoor (in the Deccan, Hindustan). The river Taptee greatly swollen in consequence of heavy rains, and one-fourth of the city inundated, and one-tenth of the houses destroyed.
'63	England. Great rains and floods. "A remarkable year for floods and high waters."—WHITE'S <i>Selborne</i> .
'63	Ireland. Floods. "Above 200 persons perished on the river Nore." In the <i>Gentleman's Magazine</i> there are melancholy accounts of the damage resulting from the thaw, after the six weeks' frost, and by the rains which followed:—"Rivers have overflowed their banks, and laid vast tracts of land under water, cattle in many places have perished, and in some are deprived of food; people have been forced to leave their dwellings, and take refuge in the neighbouring towns; in short, such a scene of calamity and distress as is to be seen in the counties of <i>Lincoln</i> and <i>Cambridge</i> has never been known in this island by the oldest man [in] it. The vast extent of meadow from the source of the Thames to the river's mouth is almost covered with water. The great bank between Peterborough and Wisbeach in Cambridgeshire has been broken down, and near 400,000 acres of land overflowed. The river Welling in Lincolnshire has likewise broke its banks, and overflowed Porsend and Crowland fens. . . . The river <i>Severn</i> has likewise risen to an uncommon height, and laid the meadows on each side its banks under water to an immense extent. About Birmingham the floods are inconceivable. In short such general floods were never known." January.
'63	Europe. Great floods.
'64	Ireland. January. Great floods in Dublin, Cork, and other parts.
'65	England and Europe. General rain storms and floods.
'65	Ireland. Great floods throughout the south.
'67	England. An apparent irruption of the sea. The tide rose so high in the Thames that the damage occasioned was estimated at 50,000 <i>l</i> . On the sea-board of Essex several islands were submerged. At <i>Aldborough</i> (Suffolk) the sea flowed in at the windows of several houses, bore down a few, and damaged many. The inhabitants were driven to the greatest distress. Much damage done near Ipswich. <i>Ayrmouth</i> (Scotland), the sea breached over many of the houses, the high street was like a sea, and the consternation of the inhabitants inexpressible.— <i>Gentleman's Magazine</i> , Jan., 1767.

TABLE II.—Of the Floods and Inundations of the World—Contd.

A.D.	England—Contd.
1767	"The floods are every where out; but the most melancholy effects of these inundations are almost always felt in the fen counties, where a breach in the banks generally lays whole districts under water. By a breach in Deeping Bank, several thousand acres are now under water; and by the north bank of the River Glen giving way, the north fens are overflowed, by which the inhabitants of the villages between <i>Peterborough</i> and <i>Lincoln</i> are reduced to the most deplorable circumstances: their cattle carried away, and their houses three or four feet under water. Many other places have shared the same fate; and in short their consternation and distress is such as none can conceive but those who have been in the like situation."— <i>Gentleman's Magazine</i> , February.
'67	<i>Wales</i> . "No man living ever saw such floods."
'67	<i>Scotland</i> . The inundations on the breaking up of the snow did incredible damage. At <i>Lochinabar</i> the waters of <i>Annan</i> came down with such rapidity as to take houses, cattle, corn, and everything along with them.— <i>Gentleman's Magazine</i> , February.
'67	<i>Ireland</i> . The waters of the <i>Liffey</i> overflowed, doing great damage.
'68	<i>India</i> . There were heavy floods in <i>Behar</i> and the district (<i>Bengal</i>) in August of this year, and then very little rain for nearly two years. (See <i>Famines</i> , 1770.)
'70	<i>India</i> . Great flood in the <i>Eastern Provinces</i> (<i>Bengal</i>), by which much of the benefit which would have followed a two years' drought was diverted.
'70-71	<i>Holland</i> . "Terrific floods, combined with an infectious disease rife among the cattle."— <i>DAVIES' Holland</i> .
'71	<i>Yorkshire</i> (England). A dreadful inundation, called the <i>Ripon Flood</i> . — <i>VINCENT</i> ; also in <i>Northumberland</i> , <i>Newcastle bridge</i> carried away.
'73	<i>Ireland</i> . Great mountain torrents.
'73	<i>Venice</i> . A village carried away.
'73	<i>Naples</i> . Great damage from the sea.
'73	<i>Calcutta</i> . Great destruction by rain and floods.
'74	<i>England</i> . Great floods at <i>Battersea</i> and <i>Chelsea</i> .
'75	<i>Rotterdam</i> (Holland). The <i>Meuse</i> overflowed, doing considerable damage.
'75-76	<i>England</i> . Wet autumn and winter. "The land-springs, which we call <i>levants</i> , break out much on the downs of <i>Sussex</i> , <i>Hampshire</i> , and <i>Wiltshire</i> . The country people say, when the <i>levants</i> rise, corn will always be dear; meaning that when the earth is so glutted with water as to send forth springs on the downs and uplands, that the corn vales must be drowned; and so it has proved for these last ten or eleven years past; for land-springs have never obtained more since the memory of man than during that period; nor has there been known a greater scarcity of all sorts of grain, considering the great improvements of modern husbandry. Such a run of wet seasons a century or two ago would, I am persuaded, have occasioned a famine. Therefore pamphlets and newspaper letters that talk of combinations tend to influence and mislead; since we must not expect plenty till Providence sends us more favourable seasons."— <i>WHITE'S Selborne</i> .
'76	<i>Kent</i> . Great floods.
'76	<i>France</i> . 25th April. Village of <i>Bar le Duc</i> destroyed; and other damage.
'77	<i>Dublin</i> . Great flood; 6 feet of water in <i>St. Patrick's cathedral</i> .
'77	<i>England</i> . Great flood of the <i>Tyne</i> . It was on this occasion that the stock in trade of <i>Bryson</i> , the great <i>Newcastle bookseller</i> , whose shop was on the old bridge, was "washed out."— <i>CURWEN'S History of Booksellers</i> , p. 452.
'82	<i>England</i> . Great floods in <i>Northumberland</i> ; <i>Hexham</i> and other bridges thrown down.

TABLE II.—Of the Floods and Inundations of the World—Contd.

A.D.	
1784	<i>England.</i> Great floods in Yorkshire ; Tadcaster bridge thrown down, and several lives lost.
'84	<i>India.</i> Some of the north-west provinces of the Punjab suffered very severely from floods after a great drought. December.
'85	<i>England.</i> Great floods in September and October of this year.
'85	<i>Germany.</i> Extended floods and vast destruction of property.
'86	<i>Sussex.</i> Irruption of the sea ; block-house at Brighthelmstone washed down.
87	<i>Manchester.</i> A great flood did much damage.
'87	<i>Ireland.</i> Great flood in most of the principal rivers of Ireland. Also in Dublin ; 8 feet of water in the cathedral.
'87	<i>Navarre (Spain).</i> September. Great torrents from the mountains ; over 2,000 persons lost their lives. May.
'87-88	<i>India.</i> Floods in Behar and other north-west provinces of the Punjab ; said to have caused loss of 15,000 lives and 100,000 herd of cattle. "The rains commenced abnormally early in 1787, and continued for months almost without cessation. In some of the districts of Bengal and in Behar it is stated that from the latter part of March to the latter half of July, they had continued with such violence as almost to render cultivation impossible. There was a break in the rains about the end of July, but early in September the waters were out again as widely as ever in Sylhet, and similar complaints were made from Jesson, Nuddes, and Central Bengal. About 1st October a tremendous storm of rain and wind swept all over the western districts of Bengal, which ended in a cyclone of unexampled extent, which seems to have swept across almost the whole of Bengal. By this disaster the late crops, which, after all previous disasters were fast getting into ear, were in a great measure destroyed over larger tracts of country."—DANVERS, 1877.
'88	<i>Scotland.</i> The bursting in of the dam-dykes at Kirkwald caused great destruction.
'89	<i>England.</i> Great rain storms in the north.
'91	<i>Cuba.</i> Great torrents of rain ; 3,000 persons and 11,700 head of cattle of various kinds drowned.
'91	<i>England.</i> The Don, the Derwent, and the Trent all greatly overflowed.
'91	<i>Italy.</i> Extended floods at Placentia.
'92	<i>Worcestershire.</i> Extended floods near Broomsgrove (April).
'92	<i>Lancashire.</i> Great floods (August).
June 21	<i>Retford (Notts.)</i> Great floods which caused much damage to the town ; and in other parts of the country caused by melting of snow.
1795	<i>West Indies.</i> Great destruction at St. Domingo ; 1,400 lives lost.
1800	<i>China.</i> Great floods.
'01	<i>Holland and Germany.</i> Great damage on sea coasts.
'02	<i>England.</i> Great floods ; much damage to shipping, etc.
'02	<i>Dublin.</i> January and February. Great overflow of the Liffey. "Immense damage."
1802	<i>Europe.</i> In the south great rain storms.
April 14	<i>Lorea (Mercia in Spain).</i> A reservoir burst, which inundated more than 20 leagues, and drowned upwards of 1,000 persons, besides cattle.
1807	<i>Dublin.</i> Great floods in the neighbourhood.
'08	<i>England.</i> Floods in various parts.
'10	<i>Lincolnshire.</i> Breaking down of sea-banks.
'11	<i>Pesth (Hungary).</i> Overflow of Danube, by which twenty-four villages and their inhabitants were swept away.
April	<i>Shropshire (England).</i> Bursting of a cloud near Salop ; many persons and cattle drowned.
May	<i>Shropshire (England).</i> Bursting of a cloud near Salop ; many persons and cattle drowned.
October	<i>Luneburg.</i> Village of Wurgen swept away by overflowing of Elbe.

TABLE II.—Of the Floods and Inundations of the World—Contd.

A.D.	
1813	<i>Austria, Hungary, and Poland.</i> Great floods from rain during the summer. Produced famine in Poland; and caused loss of 4,000 lives.
'13	<i>Widdin</i> (Danube). September 14. Island near, on which were 2,000 Turkish troops, suddenly flooded; all drowned.
'13	<i>Silesia</i> (Prussia). The floods caused the death of about 6,000 inhabitants; and the ruin of the French army under Macdonald was accelerated by the same cause.—VINCENT.
'13	<i>America.</i> Great overflow of the Mississippi; immense damage.
'14	<i>Ireland.</i> The Shannon again overflowed and did great damage.
'14	<i>Bengal.</i> Great overflow of Narbudda river, sweeping away villages, inhabitants, and cattle.
'16	<i>Strabane</i> (Ireland). The melting of the snow in the mountains caused most destructive floods.
Jan. 2	
February	<i>England.</i> Great floods in Northumberland and Durham.
March 21	<i>Germany.</i> The Vistula overflowed; many villages submerged; great loss of life and property.
April 22	<i>Ireland.</i> Great floods at Londonderry.
June & } July }	<i>Germany.</i> Harvest greatly endangered from continued rains.
1818	<i>England.</i> Great quantities of rain fell; harvest much delayed.
August	Also on continent.
1818	<i>Ireland.</i> Great floods; waterspout in Clare.
'19	<i>England.</i> June. Large tracts of land flooded in the Fen Country.
'19	<i>Ireland.</i> Great floods in the north.
'21	<i>England.</i> Disastrous rains and floods.
'21	<i>Ireland.</i> August and September. Serious floods and rains throughout the west; not only was hay and grain washed away, but the potatoes were swept up out of the ground. October. Heavy rains and floods. November. Incessant rains and floods; Shannon rose greatly. Also floods in Dublin.
'22	<i>Great Britain.</i> January. Great storms and floods through British Islands generally.
'22	<i>Ireland.</i> Great storms and inundations at Wexford and Cork.
'22	<i>Geneva.</i> Great floods; serious damage.
'22	<i>Havanna.</i> Great deluge at.
'24	<i>Belfast</i> (Ireland). Great floods at.
Nov. 19...	<i>St. Petersburg</i> (Russia). Flooded from the overflowing of the Neva. The river rose to the first story of the houses in this city. Carriages and horses were swept away, and a regiment of Carabineers, who had climbed to the roof of their barracks, were drowned. At Cronstadt a 100-gun ship of the line was left in the middle of the market-place. In the two places more than 10,000 lives were lost, and property to the amount of many millions of roubles was destroyed. The Neva had overflowed in 1728, 1729, 1735, 1740, 1742, and 1777; but none of these occasions was equal to that of 1824.
1825	<i>Denmark.</i> During a violent storm the sea broke through the isthmus between the North Sea and Lymfjord, thereby making the north part of Jutland an island.
'25	<i>Rotterdam</i> (Holland). The Meuse overflowed, doing considerable damage.
'27	<i>Naples.</i> Destructive inundations.
'28	<i>Ireland.</i> Great rise of the Shannon; Cork also flooded.
'29	<i>Dantzic.</i> The Vistula broke through its dykes, by which some 4,000 houses were destroyed and many of their occupants drowned. About 10,000 head of cattle were lost.
April 9	
Aug. 9	<i>Scotland.</i> The "Moray Floods" caused by rainfall, when the Spey and Findhorn rose in some places 50 feet above their ordinary level, and caused great destruction of property. Many lives were lost.—SIR T. D. LAUDER.
1829	<i>Ireland.</i> Great floods in south of Ireland.

TABLE II.—Of the Floods and Inundations of the World—Contd.

A.D.	
1830	<i>Vienna</i> . February. The dwellings of 50,000 of the inhabitants were under water.
'80	<i>Coblentz</i> (Prussia). In the spring the waters of the Moselle thawed before those of the Rhine, and being stopped by the ice, did very considerable damage.
'81	<i>Ireland</i> . Great floods in the Liffey; and waterspouts in various parts of the country.
February 1832	<i>Coringa</i> (Hindustan). Great and most destructive inundation.
'83	<i>Canton</i> (China). Incessant rains; about 10,000 houses were swept away, and 1,000 persons drowned. The rains extended to other parts of China.
October 1833	<i>Calcutta</i> (India). A high tide in the Hooghly committed great destruction.
'84	<i>Gibraltar</i> . Waterspout and great damage from floods.
'87	<i>England</i> . Floods caused by thaw.
'40	<i>France</i> . The Saone poured its waters into the Rhone, broke through its banks, and covered 60,000 acres. Lyons was inundated. In Avignon 100 houses were swept away, still a greater number at La Guillotiere; and upwards of 300 at Vaise, Marseilles, and Nismes. Many villages almost swept away. The Saone had not attained such a height for two hundred and thirty-eight years.
Oct. 31 to Nov. 4	
1841	<i>Middlesex</i> . Great floods at Brentford and surrounding districts; many lives lost, and considerable destruction of property.
Jan. 16	
Nov.	<i>France</i> . Great floods at Maçon and neighbourhood; immense damage done.
1842	<i>Ireland</i> . Great floods at Limerick; waterspouts elsewhere.
'44	" Extensive floods in the east and south.
'45	<i>China</i> . Great floods. "Along the shores of the Yellow Sea the phenomenon took the character of a second deluge; whole provinces being submerged."
'46	<i>France</i> . Overwhelming inundations in the centre, west, and south-west; numerous bridges, with the viaduct of the Orleans and Vierzon Railway, swept away. The latter had cost 6 million francs [240,000 <i>l.</i>]. The Loire rose 20 feet in one night. The total destruction was estimated at 4,000,000 <i>l.</i> sterling.
Oct. 22	
1848	<i>Inverness</i> (Scotland). Great overflow of the river Ness, which swept away the old bridge and did other damage.
'50	<i>Ireland</i> . Great floods in County Kerry; bridges destroyed, &c.
April	August. Great floods in Limerick.
Aug.	<i>Belgium</i> . Calamitous flood.
1850	<i>Khartoum</i> (Egypt). "An inundation occurred."
'51	<i>Ireland</i> . Great and destructive floods alike in spring and autumn.
'52	<i>Holmfirth</i> , near Huddersfield (Yorks). The reservoir burst, consequent upon a rain-flood. Between 90 and 100 persons perished; and property was destroyed of the value of 600,000 <i>l.</i> , consisting of woollen mills, houses, &c., in the valley.
Feb. 5	
1852	<i>England</i> . Dreadful storms and floods in many parts of the country, more especially in the Severn valley; also in Derbyshire; in Sussex, and in Scotland and in Dublin.
Sept., Oct. Nov.	
1852	<i>Switzerland</i> and parts of <i>Belgium</i> , <i>France</i> and <i>Germany</i> suffered severely. For full details of floods at home and abroad this year, see <i>Gentleman's Magazine</i> .
1853	
July 9	<i>South Wales</i> . Great floods caused by rain. At Brecon the Houdda rose to a great height, and carried away the bridge. Many houses inundated. People escaped by resorting to the upper parts of their dwellings.
Nov. 2	<i>Cork</i> . Great overflow of the Lee. St. Patrick's bridge swept away, with many people on it.

TABLE II.—Of the Floods and Inundations of the World—Contd.

A. D.	
1843	<i>Hamburg.</i> An overflow of the Elbe laid the greater part of the city under water.
Jan. 1 '86	<i>France</i> (South of). Great floods, occasioning loss of agricultural produce and other property to the extent of 140 million frs. (5,600,000 <i>l.</i>).
'86	<i>Prome</i> (Burmah). Great overflow of the Irrawaddy nearly destroyed this town.
'61	<i>Holland.</i> Great inundations. About 30,000 of the peasantry rendered destitute.
Jan., Feb. 1861	<i>Montreal</i> (Canada). Flood, occasioned by the breaking of the ice of the St. Lawrence in the spring, laid the greater part of the city under water, and occasioned the destruction of a large amount of property.
1862	<i>St. Germain</i> (near King's Lynn). Great inundations through the bursting of the Middle Level Sluice. Some 10,000 acres of cultivated land submerged. Another marshland sluice burst; large tract flooded.
May 4 1863	<i>Melbourne</i> (Australia). A flood, caused by the rising of the waters of the Yarrayarra 40 feet above their usual level, submerged the greater portion of the city and destroyed property to the value of 250,000 <i>l.</i>
Dec. 14-24 1864	<i>Bradfield Reservoir</i> (near Sheffield). The embankment gave way at midnight; the water rushed in torrents through the neighbouring villages. Great destruction of property, and 250 persons drowned.
Mar. 11 Oct. 81	<i>Arelas</i> (France). The bridge of boats and much property destroyed by a sudden rising of the Rhone.
1866	<i>France.</i> September. Most extensive damage from floods.
Nov.	<i>England.</i> Great floods in the north, especially in Yorkshire, Lancashire, and Derbyshire; farms destroyed, mills thrown down, railways stopped, and mines flooded. The towns of Leeds, Manchester, Preston, and Wakefield suffered much.
1868	<i>Baltimore</i> (U. S.). 24th July. Great damage to the city by flood. Many lives lost.
'69	<i>Ireland.</i> January. Great floods in Cork, Dublin, and other places.
'70	<i>Rome.</i> December. Considerable floods, causing great distress.
'71	<i>England.</i> Extensive floods. Mr. Alfred Haviland published a paper <i>The Present Floods and the Concer Fields.</i>
'71	<i>Burmah.</i> Great floods near Prome.
'72	<i>Manchester.</i> The Medlock overflowed its banks and caused great destruction of property.
July October....	<i>Italy.</i> Great floods in north of Italy; the Po and other rivers overflowed; thousands of people unhoused. Mantua, Ferrara, &c., suffered much.
1872	<i>India.</i> Great floods in Khandeish and Nassick (Bombay Presidency). These floods were mainly attributable to the denudation of the hills of their forest trees. There was in consequence nothing either to absorb or arrest the rainfall, which descended the hills in torrents, destroyed dwellings, and occasioned much loss of human life and cattle, as also great damage to the water courses and property generally; <i>vide</i> Administrative Report on Forest Department in Bombay Presidency, 1875-76. (See notes at end of Table of Droughts.)
'74	<i>London.</i> March. Great damage on banks of Thames from very high tide.
April.....	<i>United States.</i> Great floods in the Mississippi valley, mainly in Louisiana. About 250,000 acres of cotton, 100,000 acres of corn, and 500,000 acres of sugar were submerged. New Orleans was in considerable danger for a time, part of the levees which protect that city being broken down. About 25,000 persons were wholly or partially ruined.
May 16....	<i>Massachusetts</i> (U. S.). Reservoir in Mill River Valley, near Northampton, burst. Several villages destroyed and about 140 lives lost.

TABLE II.—Of the Floods and Inundations of the World—Contd.

A.D.	
1874	<i>Nevada</i> (U. S.). Great rainfall and waterspout. About thirty lives lost.
July 24	" <i>Pittsburg and Alleghany</i> (U. S.). Great rain storm; rivers seriously flooded and about 220 persons drowned.
1875	This is one of the most generally disastrous years on record for floods. We shall endeavour to give a brief geographical record.
June	<i>France</i> . Tremendous floods in the south; at Toulouse, Verdun, &c., many villages swept away; in the whole 6,900 houses destroyed. About 1,000 lives lost. The loss, mainly occasioned by the rising of the Garonne, was estimated at from 12,000,000 <i>l.</i> to 15,000,000 <i>l.</i> Public subscriptions opened in England.
"	<i>Hungary</i> . Disastrous floods near Buda-Pesth; great loss of life and property.
July	<i>England</i> . Great floods in the midland and eastern counties, West of England, Wales, and in Eastern Scotland.
"	<i>Hungary</i> . Another storm broke over Buda-Pesth; great damage. Public subscriptions opened.
"	<i>Silesia</i> . Torrents of rain; great damage.
1875	<i>Germany</i> . A waterspout burst near the town of Kirn; a number of persons drowned; much property destroyed.
August	<i>United States</i> . Great floods in the Central States; in Central Illinois, and in the Ohio and Mississippi valleys; also in Arkansas.
"	<i>Burma</i> . Heavy floods, exceeding those of 1871.
1875	<i>India</i> . Disastrous floods in the north-west provinces; great loss of life and destruction of property.
August	<i>France</i> . Again great floods in the south of France, at Montpelier, &c. Vineyards damaged.
Sept.	<i>Switzerland</i> . Great floods in Canton Glarus. <i>Holland</i> . Great floods.
1875	<i>West Indies</i> . At the Island of St. Vincent 19 inches of rain fell in twelve hours.
Sept. 9	" <i>Texas</i> . Great flood in Indianola, nine-tenths of houses destroyed, and much other damage. Public subscription through the U. S.
Oct.	<i>England</i> . Great floods in the Midland Counties, also in the north-western counties at Dawlish.
"	<i>Venice</i> . A considerable flood; the Adriatic driven in by a gale.
1876	<i>France and Holland</i> . March. Severe inundations.
'76	<i>China</i> . Great floods in the northern provinces.
Oct.	<i>Wales</i> . Great damage in South Wales from overflow of River Ebbw; collieries damaged, &c.
"	<i>Bengal</i> . Great inundation of tidal wave, consequent upon hurricane. Estimates of loss of life as high as 200,000; loss of property immense.
Nov.	<i>Scotland</i> . Great floods in Perth and Forfar. Caledonian Railway much injured.
Dec.	<i>England</i> . Floods generally throughout England.
"	<i>Turkey</i> . Deluge of rain round Adrianople; 1,000 houses said to be swept away; and other serious damage.
"	<i>Spain and Portugal</i> . Great floods in Andalusia, and especially in Seville. Also in southern Portugal. See <i>Times</i> , 26th December.
1877, Jan.	<i>London and England</i> generally. Great damage done in the southern districts of London by high tide combined with floods; also in Thames Valley generally. Destruction estimated at over 200,000 <i>l.</i> A subscription opened by Lord Mayor for relief of poorer sufferers. Large sums raised. In the eastern, midland, and south-western counties great floods.
'78	<i>California</i> . In the early months of this year great damage was sustained in the lowlands of this important grain-producing State. We draw the following summary from the letter of the (London) <i>Times</i> correspondent:—
	"By the overflow of the Sacramento and American rivers, the whole

TABLE II.—Of the Floods and Inundations of the World—Contd.

A.D.	California—Contd.
1878	<p>country around Sacramento was flooded, the water breaking through the levees that were built to protect the city from inundation, and the safety of the entire city was at one time imperilled. The river rose 25 feet 11½ inches above low water mark, and a rise of a few inches more would have completely swamped the city. Fortunately the Yolo levees gave way in time, and allowed the water within the embankment to spread out over the Yolo and Solano plains. Immense exertions were made to repair the broken levees by means of sand bags, which were brought to the scene of disaster by a locomotive, followed by a train of flat cars. In the neighbouring town of Washington the water in many places stood 10 feet deep, trees were laid prostrate, and shanties and outhouses washed away. Although several houses were completely wrecked and a great deal of property destroyed, no lives were lost, though several persons had very narrow escapes. In other parts of the country the people were not so fortunate. Of the twenty-five islands which may be counted in the Sacramento Archipelago, scarcely one was to be seen during the inundation, Union and Sherman Islands, both protected by levees, having been submerged. Boats and steamers were busy in every direction in affording assistance to the distressed, and moving among the islands and sloughs for the purpose of carrying off cattle and people to the mainland.</p> <p>"In Sutter county the whole of the tule lands were overflowed, dwellings, barns, outhouses, and fencing completely destroyed, and a large amount of grain in bags carried away by the flood. The loss in live stock in many parts of the country has also been very severe. The area of land thus submerged embraces the richest and most productive portions of the State, sufficient to produce cereals for our entire population. Besides the immense amount of damage sustained in loss of property, the floods have left a deposit of silt, to do away with which will cause much trouble and expense to our farmers. What the amount of loss experienced in the Sacramento Valley is, I have not the means of ascertaining, but it is supposed to be several million dollars. The bed of the Sacramento has been elevated several feet, and the elevation increases in some places at the rate of about one foot a-year. The <i>débris</i> washed down from mining camps above the Yuba River long since caused an overflow of lands in the Marysville district, and the entire destruction of agricultural pursuits on those lands. The same causes are extending to and influencing the Sacramento, and even the harbour at Mare Island, the naval station of the Pacific, is said to be shoaling so much as to prevent freedom to navigation. The question as to whether mining tailings should be allowed to be shot into rivers, and, by filling them up, injuring agricultural interests, has long been discussed by the legislature; but the consideration of impeded navigation and the serious destruction of property by excessive floods, will probably now turn the scale in favour of some restrictions on the mining interest, which has so long withstood any reform in this respect."</p>
1878, Feb.	<p><i>Australia.</i> "After the terrible drought which has afflicted the country, the abundant storms have been welcomed, but the parched earth has not been equal to carrying off such an enormous quantity of water suddenly poured upon it, and disastrous floods have followed, causing great destruction of life and property. The railway at Campbelltown was flooded to a depth of 2 feet, mail carts have been washed away, numbers of trees, fences, walls, &c., uprooted and thrown down, bridges destroyed, and other similar serious disasters have occurred. At Scone, near Sydney, 1'33 inches of rain fell in twenty-five minutes. Some hailstones which accompanied the rain measured as much as 1½ inch in circumference. Serious</p>

TABLE II.—Of the Floods and Inundations of the World—Contd.

A.D.	Australia—Contd.
1878 February	damage has also been done by heavy thunderstorms, many buildings being struck and destroyed by lightning." During a storm in Sydney, as much as 10·88 inches of rain fell in forty-eight hours.
1878 March	<i>Ceylon.</i> "During the last four months Ceylon has been visited by a succession of floods, which have caused great destruction of property and seriously impaired the prospects of the coming coffee crop. In some districts as much as 50 inches of rain have been registered in twenty days; and from the 1st of November to the 20th of January last, 130 inches of rain were gauged at Laggala. The natives express the opinion that the 'sky is moth eaten, and hence the constant leakage.' Up to the last advices from Galle the prospects of fine weather were as remote as ever. Rice and grain have consequently increased enormously in price—from an exactly opposite cause to that which gave rise to the late famine in the adjoining continent, and which has also created such distress in Australia and at the Cape of Good Hope. In all these colonies prolonged droughts, which have only just broken, have prevailed to such an extent as to seriously interfere with business operations of all kinds." — <i>Newspaper Correspondence.</i>
1878 March	<i>France.</i> "There were inundations in the Indre-et-Loire, and the Seine and other rivers were also very high. Snow is falling in the east, and frost has done some mischief in the south. At Vernay, near Tours, the flood swept away a bridge over a rivulet, and part of a luggage train fell into the water, the stoker and conductor being drowned."— <i>Times Telegram.</i>
1878 April	<i>England.</i> Very heavy fall of rain in and round London. Great floods in Kent. At Lewisham (a suburb of London) all ordinary traffic was suspended, and the inhabitants were carried through the streets to the railway stations in boats, carts, &c. A subscription was raised for the poorer sufferers. This rainfall drew the following statement from Mr. Samuel Kinns, F.R.A.S.:— "Perhaps the following calculation in reference to the late fall of rain, which was said to amount to 3 inches, may interest your readers. This would equal 10,890 cubic feet, or 304 tons per acre, and taking the map of London generally published in the <i>Post Office Directory</i> to contain 120 square miles, there must have fallen on that surface 836,352,000 cubic feet, weighing 23,347,200 tons. This would be equal to the entire quantity of water contained in a canal 5·28 miles long, 30 feet broad, and 10 feet deep, being emptied upon London in twenty-four hours. The average annual rainfalls for the whole of England is estimated at 30 inches, but the amount differs greatly in the eastern and western districts. In Penzance it is 40 inches, and in London only 21 inches, therefore on the 10th and 11th of April we had one-seventh of the average rainfall for a whole year. No wonder that the streets were flooded, the marvel is that so little comparative mischief was done.
May 1878 May	<i>England.</i> Great floods in the Thames valley. <i>Hong-Kong.</i> A correspondent to the <i>Times</i> wrote hence, under date 31st May. "I have just been reading an account in your columns relative to an abnormal fall of rain in England. We in this distant tropical station may perhaps be allowed to smile when we compare 9 inches of rain in three hours, which we have just had, with the English fall of about 3½ inches in twenty-four hours. On the occasion to which I allude, there was nearly 15 inches in the twenty-four hours, an amount which very few of the gauges were competent to retain for registration."
June 1878 June	<i>England.</i> Great rainfall at Bath and other parts of the West of England.

In this table will be found many details not strictly bearing upon famines; but as the table, it is hoped, will have other uses than that immediately before us here, I have desired to make it as perfect as the materials at command would permit.

The great frequency of *Inundations* from the sea will strike the careful reader of the preceding table. These inundations are occasioned by three principal causes:—1. Unusually high tides supposed to be occasioned by *lunar* influences. 2. The tides acted upon by wind storms. 3. Undulation of earth's surface (in particular localities) from the subterranean influence of earthquakes. Table IV will, it is hoped, throw some light upon these incidents.

It is also seen from this table that the flooding of the Thames Valley is no new feature.

White in his "*Natural History of Selborne*," gives a reason why lands which are much flooded remain unproductive:—

"Lands that are subject to frequent inundations are always poor; and probably the reason may be, that the worms are drowned. The most insignificant insects and reptiles are of much more influence in the economy of nature, than the incurious are aware of: and are mighty in their effect from their minuteness, which renders them less an object of attention; and from their numbers and fecundity. Earth-worms, though in appearance a small and despicable link in the chain of nature, yet if lost would make a lamentable chasm . . . worms seem to be the great promoters of vegetation, which would proceed but tamely without them, by boring, perforating, and loosening the soil, and rendering it pervious to rains and the fibres of plants; by drawing straws and twigs into it; and most of all by throwing up such infinite numbers of lumps of earth called worm-casts, which being their excrement, is a fine manure for grain and grass. Worms probably provide new soil for hills and slopes, when the rain washes the earth away . . . Earth without worms would soon become cold, hard-bound, and void of fermentation, and consequently sterile."

2. FROSTS.—In temperate zones, frost is a deadly enemy to vegetation in several forms. In the matter of grain cultivation it may, by setting in early, prevent the efficient manipulation of the soil and the sowing of the autumn seed. Or by being protracted in the spring it will prevent spring sowing, or even seriously injure the young plants. Combined with rain it may even destroy the vitality of the seed while yet in the ground. And in the northern part of our island, it not unfrequently destroys the grain before it is fully harvested. Efficient drainage of the soil is almost as effective against the ravages of frost as against the damage from rain.

TABLE III.—*The Great Frosts of History.*

A.D.		
134	<i>England.</i>	Thames frozen over two months.
153	"	Thames and all rivers frozen nearly three months.
173	"	Three months' frost, followed by dearth.
220	<i>Britain.</i>	Frost lasted five months continuously.
250	<i>England.</i>	Thames frozen over nine weeks.
290-91....	"	Most of the rivers frozen for about six weeks.
359	<i>Scotland.</i>	Fourteen weeks' frost; also very severe in <i>England</i> .

TABLE III.—*The Great Frosts of History—Contd.*

A.D.	
401	<i>Europe.</i> The Euxine Sea frozen; also parts of Bosphorus.
474	<i>England.</i> Frost with great snow for four months.
507-8	<i>Britain.</i> Rivers all frozen for about two months.
525	<i>England.</i> Thames hard frozen for six weeks.
558	<i>Eastern Europe.</i> The Danube frozen over.
604	<i>Scotland.</i> Four months' frost, followed by dearth; also severe in <i>England.</i>
670	<i>England.</i> "A fatal frost."—SHORT.
695	" The Thames frozen over for six weeks. Trade carried on in booths, &c.
707	<i>Asia.</i> Terrible frost.
759	<i>England.</i> Frost from 1st October to 28th February, 760.
763	<i>Constantinople.</i> The two seas frozen.
821	<i>England.</i> Great, after two or three weeks' rain.
827	" Thames frozen nine weeks.
856	<i>Poland.</i> Great frost.
859	<i>Eastern Europe.</i> Carriages were used on the Adriatic Sea.
860	" Mediterranean Sea frozen in various parts.
908	<i>England.</i> Most of the rivers frozen for about two months.
923	" The Thames frozen over for thirteen weeks.
962	" "So great as to cause a famine."
975	" Severe frost.
987	" A frost that lasted 120 days; began 22nd December.
998	" Thames frozen over five weeks.
1020	" Very severe.
'35	" Frost on Midsummer Day; all grass and grain and fruit destroyed; a dearth.—SHORT.
'59	<i>England.</i> Great frost, and severe plague and famine after.
'61	" Thames frozen seven weeks.
'63	" Thames frozen fourteen weeks.
'66	" A great frost.
'70	" Severe.
'76-77....	" Frost from 1st November to 15th April. "In the tenth year of his [William the Conqueror] reign, the cold of winter was exceedingly memorable, both for sharpness and for continuance; for the earth remained hard frozen from the beginning of November until the midst of April then ensuing."— <i>Harleian Miscellany</i> , iii, p. 167.
'86	<i>England.</i> "The weather was so inclement that in the unusual efforts made to warm the houses, nearly all the chief cities of the kingdom were destroyed, including a great part of London and St. Paul's."—FIRMS, GREAT, <i>Insurance Cyclo.</i> , iv.
'95-99....	<i>England.</i> These winters all very severe.
1114-15....	" Great frost; timber bridges broken down by weight of ice. This year was the winter so severe with snow and frost, "that no man who was then living ever remembered one more severe; in consequence of which there was great destruction of cattle."— <i>Old Chronicle.</i>
'21-22....	<i>England.</i> Killed grain crops, "and much people and cattle;" famine followed.
'28	<i>England.</i> Very severe.
'49-50....	" Frost continued from 10th December to 19th February.
'54	" Great frost.
'57	<i>Italy.</i> Great frost in.
'76	<i>England.</i> Frost from Christmas to Candlemas.
1205	" Frost from 14th January to 22nd March. "Frozen ale and wine sold by weight."—SHORT. "In the seventh year of King John began a great frost, which continued till the 22nd March, so that the ground could not be tilled, whereof it came to passe, that in the summer following a quarter of wheat was sold in many places

TABLE III.—*The Great Frosts of History—Contd.*

A.D.	
1205	<i>England—Contd.</i> in England for a mark [20s.], which for the more part of the days of Henry II, was sold for 12d., and a quarter of beans and peas for a noble, and a quarter of oats for 3s. 4d., which were wont to be sold for 4d."—PENKETHMAN.
'07	<i>England.</i> Frost extended over fifteen weeks.
'09	" Long and severe winter, followed by dearth.
'21	" Severe.
'26	" Severe and snow.
'33	" Frost "lasted till Candlemas."
'34	" "18 Henry III was a great frost at Christmasse, which destroyed the corne in the ground, and the roots and hearbs in the gardens, continuing till Candlemasse without any snow, so that no man could plough the ground; and all the yeare after was unseasonable weather, so that barrenesse of all things ensued, and many poor folkes died for the want of victuals, the rich being so bewitched with avarice that they could yeld them no reliefe."—PENKETHMAN.
	The <i>Mediterranean</i> was frozen over in many parts, and merchants traded their merchandise with carts.
'41	<i>England.</i> Deep snow; great frost after.
'41	" St. Mark's night, frost and snow fatal to fruit trees.
'50	" Very severe.
'54	" 1st January to 14th March, severe.
'63	" "On St. Nicholas we began a month's hard frost."
'69	" From 30th November to 2nd February.
'80	" Began on St. Vincent's Day and lasted fifty days, severe.
'88	" Great frost and snow.
'91	" Severe all the winter.
'94	<i>North of Europe.</i> The Cattegat, or sea between Norway and Denmark, was frozen; and that from Oxlo, in Norway, traders travelled on the ice to Jutland.
'96	<i>Baltic.</i> This sea covered with ice from Sweden to Gothland.
1306	" This sea covered with ice for fourteen weeks, between the Danish and Swedish islands.
'23	<i>Baltic.</i> This sea frozen and passable to travellers for six weeks.
'37	<i>England.</i> Severe frost without snow.
'38	" Severe frost for twelve weeks, after rain.
'49	<i>Baltic.</i> This sea again frozen, and passable from Stralsund to Denmark.
'53	<i>England.</i> 6th December to 12th March. "Very cruel."
'63-64	" 16th September to 6th April. "Very terrible."
1402	<i>Baltic.</i> This sea frozen from Pomerania to Denmark.
'07	<i>England.</i> Frost fourteen weeks; small birds perished.
'08	<i>Baltic Provinces.</i> Severe frost.
'20	<i>Eastern Europe.</i> The sea between Constantinople and Iskodar frozen and passable.
'26	<i>North of Europe.</i> Ice-carried traffic from Lubec to Prussia.
'33	<i>Germany.</i> Very severe.
'34	<i>England.</i> 15th November to 10th February. Thames frozen down to Gravesend.
'38	<i>England.</i> "Great and long."
'59	<i>North of Europe.</i> The Baltic frozen from Mecklenburgh to Denmark.
'68	<i>Flanders.</i> Very severe frost; wine cut with hatchets.
1515	<i>England.</i> Carriages crossed the Thames from Lambeth to Westminster.
'23	" "Most severe."
'37	" Very severe during December and January.
'43	" Great frost.
'44	<i>Flanders.</i> Wine in casks frozen into solid lumps.
'48	<i>North of Europe.</i> Oxen sledges travelled on ice from Rostock to Denmark.

TABLE III.—*The Great Frosts of History—Contd.*

A.D.	
1564	<i>England.</i> Diversions on the frozen Thames.
'65	<i>Netherlands.</i> Scheldt frozen so as to bear laden waggons.
'72	<i>England.</i> From 2nd November to 5th January, hard; late spring.
'79	" "Most hard."
'94	<i>Europe.</i> Rhine, Scheldt, and Adriatic at Venice frozen.
'98	<i>England.</i> Very severe in January.
1607	" Fires and diversions on the Thames—seven weeks.
'09	" "Severe and long."
'15	" From 17th January to 7th March. There was republished in 1814, <i>The Cold Years: a Deep Snow in which Men and Cattle perished; written in Dialogue between a London Shopkeeper and a Northcountryman.</i> 1615. 4to.
'21	<i>England.</i> Very severe from 24th November to 7th December.
'22	<i>Greece.</i> Ice covered the Hellespont.
'23	<i>Eastern Europe.</i> The Danube frozen.
'27	<i>England.</i> From 20th January to 12th February.
'35	" From 15th December to 11th February, severe.
'45	" 8th December to 17th January; severe.
'48-49	" "Now was the Thames frozen over and horrid tempests frown'd." 22nd January.—EVELYN'S <i>Diary</i> .
'58	<i>England.</i> From 1st December to 10th March, "north wind."
'58	<i>North of Europe.</i> The army of Charles X of Sweden crossed the ice from Holstein to Denmark—horse, foot, and artillery.
'62	<i>England.</i> 28th November: "A very hard frost."—PEPYS'S <i>Diary</i> .
'63	" 28th January to 11th February: severe; "8th February being a very hard frost; 28th August, cold all night and this morning, and a very great frost, they say, abroad; which is much, having had no summer at all, almost."—PEPYS'S <i>Diary</i> .
'64-65	<i>England.</i> 28th December to 7th February. 6th February: "One of the coldest days, they all say, ever felt in England."—PEPYS'S <i>Diary</i> .
'67	<i>England.</i> 15th February to 19th March.
'69	" Severe, with some remissions.
'70	<i>Prussia.</i> The waters of the Rhine frozen at Coblenz from the 11th to 17th January, so that the artificers exercised their several trades upon the ice.
'78	<i>England.</i> 9th December to 9th February, with one remission.
'80	" Frost. "Long and hard."
'84	" "Terrible frost of long continuance. Many forest trees split. In the severe frost of 1683-84, not only oaks, but elms and ash of considerable bulk, and also walnut trees, were very much rent by the violence of the cold; oaks were most of all affected, and some split in such a manner as to be seen through, with a noise like the report of a gun. These clefts were not towards the same point of the compass."— <i>Gent's Mag.</i> 1743, p. 144. There was published: <i>Modest Observations on the Present Extraordinary Frost, and of the most Eminent Frosts that have happened for many Hundred Years Past.</i> By T. T[AYLOR]. 4to. Very severe also in the North of Europe: ice in the harbour of Copenhagen 27 inches thick.
'87	<i>England.</i> From 8th December to 30th January, with some remissions.
'91	<i>Europe.</i> The severity of the weather drove the wolves into the cities, Vienna, &c.
'93	<i>Germany and Italy.</i> Severe in November and December.
'96-97	<i>England.</i> "Severe."
1707	" 1st January to April.
'09	" Great frost for three months, with snow, &c. "That dreadful winter."—WHITE'S <i>Selborne</i> . Mr. Derham supposed that this frost was greater than any within the memory of man.— <i>Phil. Trans.</i> Very little frost in Scotland or Ireland.

TABLE III.—The Great Frosts of History—Contd.

A.D.	
1711	<i>England.</i> Severe up to March.
'16	" A fair held on the Thames; oxen roasted.
'18	" "A short severe frost."
'28	" A month's severe frost.
'34	<i>Holland.</i> Very severe; but none in Sweden or Norway.
'37	<i>Italy and Spain.</i> Very severe frosts; none in Holland or Germany.
'40	<i>England.</i> Nine weeks' frost; coaches plied on the Thames. "Will stand famous in history."—SHORT. "I well remember after that dreadful winter, 1739-40, that cold north-east winds continued to blow on through April and May."—WHITE'S <i>Selborne</i> .
'39-40	Gent, the famous printer of York, in his life, tells how he set up a printing press on the river in that city during this frost, as follows:— "In January 1739 [N.S. 1740], the frost having been extremely intense, the rivers became so frozen that I printed names upon the ice. It was a dangerous sport on the south side of the bridge, where I first set up, as it were, a new kind of press—only a roller wrapped about with blankets. Whilst reading the verses I had made to follow the names—wherein King George was most loyally inserted, some soldiers round about that made great acclamation, with other good people; but the ice suddenly cracking, they almost as quickly run away, whilst I, who did not hear well, neither guessed the meaning, fell to work, and wondered at them as much for retiring so precipitately as they at me for staying; but taking courage, they shortly returned back, brought company, and I took some pence amongst them. After this I moved my shop to and fro, to the great satisfaction of young gentlemen, ladies, and others, who were very liberal on the occasion." Pp. 192 and 193.
'40	"This month (January) the frost, which began the 26th of last, grew more severe than has been known since the remarkable winter of 1715-16; so that many who had lived years at Hudson's Bay declared they never felt it colder in those parts. The Thames floated with rocks and shoals of ice. . . . Bookstalls and printing presses were erected, and a frost fair held on it; multitudes walked over it, and some were lost by their rashness. Several perished with cold in the streets and fields in and about the city. All navigation being obstructed, coals rose to 3 <i>l.</i> 10 <i>s.</i> per chaldron. Many forest trees were split up by the frost, as had been the case in 1684."— <i>Gentleman's Magazine</i> , 1740, p. 35.
'40	<i>Denmark and Prussia.</i> Very intense frosts.
'41	<i>England.</i> From 15th September to 1st February. "All frost or rain."
'42	" Very severe for many weeks. "The frost having continued near three weeks, the streets in some parts of the city, though there had been no snow, were rendered very incommodious, and several accidents happened."— <i>Gentleman's Magazine</i> (18th) December, 1742.
'45	<i>Russia.</i> Unusually severe.
'54	<i>England.</i> Very severe; especially at Bath and in south-west of England.
'60	<i>Germany.</i> Very severe.
'63	<i>England.</i> Frost lasted ninety-four days, and produced terrible effects. In the <i>Gent.'s Mag.</i> for this year, it is stated that the frost set in on Saturday, 25th December, 1762: "A most intense frost with easterly wind, which has since continued, with very little intermission, until the end of January. Some experiments have been tried during the course of it, which prove that on some days it was no less severe than that of 1740, though upon the whole it has not been attended with the same calamitous circumstances. On Friday, 31st December, a glass of water placed upon a table in the open air, in six minutes froze so hard as to bear 5 shillings upon it; a glass of red port wine

TABLE III.—*The Great Frosts of History—Contd.*

A.D.	
1763	<i>England—Contd.</i> placed upon the same table froze in two hours; and a glass of brandy in six, both with hard ice." In <i>Cornwall, Wales, and Ireland</i> this frost was felt but slightly.
'63	<i>Germany.</i> The frost seems to have set in sooner. On the 18th Dec. at eight in the morning, the cold was 2° Fahr. below zero—the same as in 1740; the next day half a degree more, "which answers exactly the same degree of cold at Paris in 1739."— <i>Gentleman's Magazine.</i>
'63	<i>France.</i> The olives and vines suffered much; the Seine and Rhone being frozen over, the navigation was stopped, and provisions rose in Paris to famine prices.
'66	<i>England.</i> February 14th and 15th. Great rain-storm in the S. and S.W. of England, which, by reason of a north-east wind, became frozen as it fell, and thus weighting down large timber trees, produced terrible destruction. In the northern parts of England there was snow, accompanied by severe frost.—See <i>Gentleman's Magazine</i> , February.
'66	<i>Europe.</i> At <i>Ratisbon</i> (Bavaria) the frost was so severe that birds fell down dead with cold. On 13th January Reaumur's thermometer was 2° lower than in the severe weather in 1709.
'66	At <i>Lisbon</i> Reaumur's thermometer was 3½° below freezing-point.
'66	At <i>Naples</i> also the weather was so excessively severe that the snow lay knee deep in the streets; Mount Vesuvius was also covered with snow, at the same time throwing up fire and black smoke, which made a most astonishing appearance.— <i>Gentleman's Magazine</i> , February.
'67	<i>England.</i> "Extreme frost."—WHITE's <i>Selborne</i> . This was probably at the close of the year: for in the <i>Gentleman's Magazine</i> under date 21st December, we find the following: "A severe frost set in from the E.S.E., which was followed by a deep snow, by which the navigation of the River Thames has been obstructed, and the posts retarded all over the kingdom." The frost was especially severe in the West of England.
'67	<i>Denmark.</i> January. At <i>Copenhagen</i> the cold was reported to be as intense as it had been in 1740. The Sound was frozen over, and there was communication with <i>Sweden</i> on the ice.
'67	<i>Russia.</i> January. The cold unusually intense; many, both rich and poor, perished; while many more were devoured by wolves in the forests.
'67	<i>Prussia.</i> January. In <i>Berlin</i> the cold was more severe than it was in 1740. The Rhine was frozen near <i>Coblentz</i> —a circumstance which the annals of that city record as a memorable event. The artificers again followed their several trades upon the ice.
'67	<i>Italy.</i> January. The cold was so severe as to drive the poor from their habitations in the country; and some were said to have perished.— <i>Gentleman's Magazine</i> . January and February.
'66	<i>France.</i> 20th April. The frost was so severe in the province of Dauphiny, that it destroyed the vines, and cut off the blossoms of the early fruit trees.— <i>Gentleman's Magazine</i> .
'68	<i>England.</i> January. "We have had very severe frost and deep snow this month; my thermometer was one day 14½° below freezing point, within doors. The tender evergreens were injured pretty much. It was very providential that the air was still, and the ground well covered with snow, else vegetation in general must have suffered prodigiously. There is reason to believe that some days were more severe than any since the year 1739-40."—WHITE's <i>Selborne</i> .
'68	<i>Scotland.</i> Very severe frost.
'69	<i>England.</i> April, severe frost.

TABLE III.—*The Great Frosts of History—Contd.*

A.D.

1770-71	<p><i>England.</i> "Dreadful springs." Frost and snow. — WHITE'S <i>Selborne</i>.</p> <p>The <i>Gentleman's Magazine</i>, 11th February, 1771, says, "Last night the frost was so intense that the thermometer was below 1° 12 dig. at about 11 o'clock. And this morning the barometer was 2° lower than it was on 18th January last—consequently 2° lower than it has been known for these nine years."—p. 92.</p>
'76	<p><i>England.</i> The thermometer at Northampton was on 30th January at 9°, by 2nd February it had risen to 40°. In the <i>Phil. Trans.</i> for this year (article xl) was a paper: <i>Observations made during the late Frost at Northampton.</i> By A. Fothergill, M.D.</p>
'79	<p><i>England.</i> Frost lasted 84 days.</p>
'82	<p><i>Plymouth.</i> 16th February. "The most intense frost almost ever known. . . . The grass, which on Friday was as green and flourishing as if it had been midsummer, on Sunday morning seemed to be entirely killed. This is mentioned by our correspondent as very unusual in that part of the country; and the snow lay on the ground in many places."—<i>Gentleman's Magazine</i>, p. 93.</p>
'82	<p><i>France.</i> "On the night of the 11th November, it froze so hard at St. Pons, a district in France, during a heavy shower of rain, so as to form a glazing as clear as crystal, and at the same time of the density of the most compact ice, and so thick that the tenderest twigs were in many places an inch thick. Hardly any trees were able to support the weight. Beech, ash, chestnuts, and oaks fell under it. Large branches were torn off, and some broke close to the roots. The most dismal prospect of desolation presented itself in the woods; and the most lamentable apprehensions of famine spread consternation throughout the province. The potatoes were frozen in the ground, and the vines blasted in the vineyards. The hills in the diocese of St. Pons, Castres, and Lavour, have been most exposed to its rigour. The valleys and plains have suffered little, being covered with a very deep snow."—<i>Gentleman's Magazine</i>, January, 1783, p. 24.</p>
'83-84	<p><i>England.</i> Frost lasted 89 days. This frost commenced in December, and continued through January and February, and even in March there was snow and cold cutting winds. This frost was very general, as may be seen by the various accounts in the <i>Gentleman's Magazine</i>. Thus in the February number, "From different parts of the country we have accounts of more persons having been found dead in the roads, and others dug out of the snow, than ever was known in any one year in the memory of man." In the January number it was reported from Montrose: "This winter is likely to be still harder on the poor man than the last, and the more so by its immediately succeeding it." But up to the November preceding the winter had been so unusually mild, that on the 4th "the cattle seek shade at noon from the heat." On the 17th the thermometer stood at 56° indoors and out. On the 23rd and 24th there was frost and ice. On 30th November, "very hard frost." On 6th January, "Thames not frozen quite over, but navigation stopped by ice." Notices of great severity, especially at London, Canterbury, Salisbury, Worcester, Northampton, Barnard Castle, Edinburgh, Amsterdam, Mannheim, Rome, and Hungary. Frost especially severe from 10th to 20th of February. In the last days of the month the spring flowers were out, and the birds were singing. In March, frost, snow, and thick ice all through. Deep snow in Hampshire continued till 3rd April. Thames frozen and traffic crossed at many places.</p> <p>On the fifth bell of the Tadcaster peal is recorded: "It is remarkable that these bells were moulded in the great frost, 1783. C. and B. Dalton, Fownders, York."</p>

TABLE III.—*The Great Frosts of History—Contd.*

A.D.	<i>England—Contd.</i>
1784	In the <i>Gentleman's Magazine</i> for February there is the following: "From 10th December, 1783, to this day it has been 63 days' frost; of these it snowed nineteen, and twelve days' thaw, whereof it rained nine. Had the frost continued at 13°, as on the 31st December during the night, it would have frozen over the Thames in twenty-four hours."—p. 147.
'84	<i>Southern Europe.</i> There was severe frost in <i>Venice, Genoa, and Rome.</i>
'85	<i>England.</i> Severe frost. At Hinckley (Leicestershire), the thermometer registered on the last day of February, 19° Fahr. below freezing point.— <i>Gentlemen's Magazine</i> , p. 194. There was much snow.
'85	<i>Europe.</i> This frost was severe throughout Europe; particularly in <i>Holland.</i>
'89	<i>England.</i> Long and severe frosts.
'95–96	" Winter very severe; Thames frozen. The Antiquarian Society of Newcastle recorded that the ice on the Tyne was 20 inches thick.
1812	<i>Russia.</i> Very severe; Napoleon at Moscow.
'14	When Louis XVIII was King, at Hartwell, his bill for coals on one Sunday when the Thames was frozen over in 1814 was 94 <i>l.</i> 18 <i>s.</i> 6 <i>d.</i> at 5 <i>s.</i> per cwt. There was also "a power of beer and spirits" for the coalheavers.— <i>Vide Addenda to the Edes Hartwelliana</i> , by Vice-Admiral W. H. SMYTHE.
'14	<i>Ireland.</i> Winter very severe.
'15	<i>Canada.</i> Frost at Quebec very severe.
'38	<i>England.</i> 7th January. A severe frost commenced this day—one of the most severe in modern times—and continued for a month. It was rendered more remarkable by the circumstance of its having been predicted in "Murphy's Almanack," which as a consequence became very popular. The doggerel of the period contained the following:— "Murphy hath a weather eye— He can tell whenever he pleases, Whether it will be wet or dry, When it thaws, and when it freezes."
'49	<i>Norway.</i> Frost very severe.
'55	<i>England.</i> Very severe between 14th January and 24th February; and very cold up to end of June. Fires on Serpentine in Hyde Park, and traffic established on ice in Lincolnshire.
'60–61	<i>England.</i> Very severe frost from 20th December to 5th January; many of the less hardy shrubs destroyed.
'73	<i>France.</i> "The frost which scourged all the vineyards in France during the nights of the 24th, 25th, and 26th of April, when also snow and hail fell at intervals and often in abundance, has proved most fatal in Champagne. Now that the terrible consternation of first impressions has abated, and after having obtained as correct information as possible respecting those vineyards which I have not personally inspected, I am able to estimate without much danger of exaggeration the extent of the damage inflicted. The disaster is more severe and more general on the right than on the left bank of the Marne. Thus, on the right bank, Damery, Cumieres, Hautvillers, Dizy, Champillon, Ay, Mareuil, have been heavily stricken; the loss in these rich vineyards, estimated at first at about four-fifths of the crop, is now considered to be about two-thirds. At and beyond Avenay the frost has caused less destruction, the loss at that place being one-third, while Bouzy and Ambounay have lost only one-fifth. The severity of the damage, however, is resumed at Rilly, which it is calculated has lost two-thirds; but Chigny and Ludee, more favoured, lose only one-half. But the rich slopes of

TABLE III.—*The Great Frosts of History—Contd.*

A.D. 1873	<p><i>France—Contd.</i></p> <p>Mailly and Vernzenay are damaged to the extent of five-sixths of the crop, the vineyards of Vernzenay being, moreover, infested with the <i>pyrale</i>, which, before the frost, had already destroyed the young buds to a considerable extent. I have no reliable estimate respecting Verzy, which has, however, been severely visited. As to the vineyards on the left bank of the Marne—Epernay, Pierry Moussy, Vinay, St. Martin, have lost about two-thirds of their crop. The valley from Vertus to Avize has been more spared than any other part of Champagne. At Vertus the loss is reduced to one-fifth, at Le Mesnil to three-fifths, at Oger to one-fifth, at Avize to one-tenth, at Cuis to three-fifths. On the other side of the mountain of Avize, the slopes of Grauves, facing due south, have been completely devastated, and the vineyards of Mancy, Monthelon, Chavot, have been scarcely more spared. On the authority of the most trustworthy accounts from all quarters, it may fairly be reckoned that at present a proportion equal to two-thirds of the Champagne crop has been annihilated, and there are still before us all the dangerous contingencies of the five months which precede the vintage. This alarming situation, actual and possible, has given rise to considerable transactions. Wines in bottle, as well as wines in wood, have undergone very large advances in price, which, however, have not checked sales on the spot. The rare possessors of 1868's and 1870's in any considerable quantities, have now a fortune in their hands, and are in no hurry to part with their stocks."—<i>Wine Trade Review</i>, May, 1873.</p> <p>'74 <i>England.</i> Severe frost in December.</p>
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3. DROUGHT.—In all climates of a tropical character, drought plays an important part in retarding the development of vegetation. While combined with moisture, solar heat affords the most certain means of securing luxuriance; without the moisture, you have a barren wilderness! Our earliest biblical knowledge prepared our minds for this fact in the rising of the waters of the Nile, upon which event the fertility of Egypt depends. In our table of famines, A.D. 1064, we see what has happened, when events have not followed their natural course.

Even in temperate climates like our own, long continued drought is very disastrous. Unfortunately again our meteorological records do not furnish systematic records. We have to seek our facts from fugitive sources.

Mr. E. L. Lowe, F.R.S., of the Highfield Observatory, Nottingham, says ("Notes and Queries," 5th series, viii, 507, 1877):—

"Cycles of the seasons are as certain as the laws that govern the heavenly bodies, though we have not yet been able to fix their period. It is of atoms that the universe was made, so it will be the combined work of many that will enable us to arrive at those meteorological truths which it is so desirable to discover, and which may (when once discovered) prove of so great and lasting a benefit to mankind."

It has been generally remarked that the periods of the visitations of *comets* are marked by the prevalence of drought. Regarding this point I shall speak under another head.

TABLE IV.—*Periods of Excessive Drought and Heat.*

B.C.	
138	<i>Whole world.</i> It is supposed that a great and general drought about this period gave rise to the fable of <i>Phaëton</i> setting fire to the world.
138	<i>Italy.</i> Several severe droughts are followed by plague.
A.D.	
298	<i>Wales.</i> Great drought after comet.
300 to 336	<i>Cyprus.</i> Thirty-six years' drought; expelled all the inhabitants.
362	<i>England.</i> "A prodigious drought."
374	" Drought, and then famine.
439	<i>Britain.</i> Drought after a comet.
454	<i>Eastern Europe.</i> Phrygia, Galatia, Cappadocia, &c., great drought, then famine, then plague.
454	<i>England.</i> Drought, July to September: Famine.
480	<i>Scotland.</i> Drought after comet.
484	<i>Africa.</i> Terrible.
605	<i>England.</i> Drought, with scorching heat.
680	" For three years.
737	<i>Britain.</i> Great, with scarcity.
741	" Great, with scarcity.
743	" Great, with an earthquake.
762	" "Long and terrible, with heat."—SHORT.
764	" After a long and severe frost.
767	<i>Asia.</i> Great drought.
772	<i>Ireland.</i> Great drought.
775	<i>England.</i> Drought and excessive heat, after great frost.
850-51	<i>Italy and Germany.</i> With famine.
988-89	<i>England.</i> Great drought, with heat, both years.
1021 or 22	" Excessive heat, "yet marbles sweat profusely."—SHORT.
'64	<i>Egypt.</i> The drought which caused the failure of the rising of the Nile for seven years, and hence the second seven years' famine.
1102	<i>England,</i> with excessive heat.
'13	" "So hot that corn, and some forests of wood, took fire."—SHORT.
'21	<i>England.</i> All three spring months dry, and excessive heat.—SHORT.
'30-31	" Greatest and hottest.
'35	<i>France and England.</i> Great drought.
'37	<i>England.</i> "General, with great heat: hence famine."—SHORT.
'44	" All harvest and long after.
'49	" Winter dry and warmest to 1st April, then coldest to 15th May.—SHORT.
'51	<i>England.</i> Dry and hot, harvest early and good.—SHORT.
'52	" "13th March to harvest, neither rain nor dew. First, cold nights: frost, northerly winds; then greatest heat and dry, flies, gnats."—SHORT.
1224	<i>England.</i> Great drought.
'52	" "Greatest drought all spring and summer; harvest, great rains; in October, and long after, drought again."—SHORT.
'59	<i>England.</i> Drought in summer, and great plenty.
'60	" "No rain all the year to August; then moderate showers only; oats and barley lost."—SHORT.
'85	<i>England.</i> "Sudden great darkness, then such drought and heat as killed most grain."—SHORT.
'88	<i>England.</i> Heat and drought so intense as killed many; great deaths; plenty.
'91	<i>England.</i> Drought all summer.
'91	<i>India.</i> Great drought.
'94	<i>England.</i> "Very great."
1321	" "Greatest, with heat."
'50	" After floods, storms, meteors, &c.
'52	" Drought.

TABLE IV.—Periods of Excessive Drought and Heat—Contd.

A.D.	
1353	<i>Italy.</i> Drought.
'56	<i>England.</i> Drought and heat.
'61	" "Very grievous in summer."
'75	" Excessive, with heat.
1412-13	<i>India.</i> Great drought on the Ganges-Jumna Delta.
'73-75	<i>England.</i> Great drought and heat after the two comets of 1472.
'77	" Drought, with great heat; caused plague.
'98	" "Very great."
1503	" Great drought in summer.
'10	" Excessive heat.
'16-17	" Hot and dry.
'28	" Drought from 1st February to 12th April, and all July and August.
'40	<i>England.</i> Great heat and drought.
'58	" Drought whole year, and hot.
'66	" All summer and harvest.
'68	" Excessive hot, with dearth of cattle.
'83	" Excessive hot and dry summer.—SHORT.
'90	" Drought all the year, and heat.
'92	" Extreme drought; want of water.
'98	" Great drought, with flies, gnats, &c.
'99	" April and May cold and dry; June and July dry and hot.
1600	<i>Russia.</i> Great drought.
'02	<i>England.</i> Harvest and winter dry and cold; north winds.
'07-08	" Both summers dry and hot.
'10	" "Excessive hot and dry; harvest inconstant."—SHORT.
'12	" 1st January to 1st May, north wind; dry and cold.
'16	" "Summer excessive hot and droughty."—SHORT.
'26	" The same.
'31	<i>India.</i> Great drought; and throughout Asia.
'35	<i>England.</i> Summer and harvest dry and hot.
'36	" Summer and harvest dry and hot; wind south or west.
'37-38	" Hot and dry.
'42-43	" Excessive hot dry summer.
'51-54	" Scorching hot summer and dry years.—SHORT.
'57	" Scorching hot and dry.
'61	<i>India.</i> Great drought in the Punjab.
'66	<i>England.</i> Hot and dry; east winds; Great Fire of London.
'69	" All the year dry.
'78	" "All dry, hot, and clear."
'80	" Dry hot summer.
'81	" Dry all spring and summer.
'84	" Spring dry and cold; summer very hot and dry.
'86-89	<i>Italy.</i> A great drought.
'91	" Hot and dry.
'93-94	" Hot and dry.
'99	<i>Britain.</i> Harvest hot and dry; drought till following January.
704	<i>England.</i> Hottest and driest summer known for twenty years.
'05	" Very dry till end of August.
'16	" Excessive dry till end of August.
'17-19	" Little rain, but rich dews.
'23	" Cold and dry after February.
'82-83	<i>India.</i> Province of Sind. No rainfall for two years.—DANVERS.
'83-84	" In the north-west provinces of the Punjab, no rain for two years.—DANVERS.
'90	<i>India.</i> Great drought in district of Baroda, and in some adjoining districts, resulting in severe famine.
1900	<i>England.</i> No rain fell for seventy-four days, when on Tuesday morning, 19th August, "a glorious rain came down."

TABLE IV.—*Periods of Excessive Drought and Heat—Contd.*

A.D.	
1808-04	<i>India.</i> A total failure of rain in the "ceded districts" of Allahabad. "Not a shower fell after the 12th August, 1803, and in September hot winds were blowing just as in May or June, and scorched up the crops. The winter rains also failed. This drought was followed by heavy hailstorms early in 1804."—DANVERS, 1877.
'24	<i>India.</i> Severe drought in the Delhi, and some other districts.
'32-33	" Severe drought in some of the north-west provinces.
'37-38	" Severe drought in parts of north-west provinces.
'60-61	" Severe drought in parts of the Punjaub and north-west provinces.
'62	<i>Cape Colony.</i> Disastrous drought.
'66	<i>India.</i> Severe drought in Orissa and parts of Madras.
'73	" Severe drought in Behar and parts of Northern Bengal.
'77	" Severe drought in Madras, Mysore, and parts of Bombay.
'77-78	<i>Australia.</i> The intensity of the late drought in Australia may be judged, perhaps, by the simple calculation made by the inspector of stock, that in New South Wales alone 4 million sheep were lost last year from the effects of the dry weather. This estimate is generally admitted not to indicate the full extent of the losses, as it omits to take account of the last six weeks of the drought, which extended into the middle of February of this year, during which time the effects of the lack of rain were daily intensifying in increasing ratio. At least another million must be added to those figures to account for the losses of this year and for the loss suffered by small holders and others who were for various reasons omitted from the returns. Thus we have 5 million sheep, valued at 2,500,000 <i>l.</i> at least, destroyed, directly or indirectly, through the lack of pasturage consequent on the drought. In 1876 the Australian Colonies possessed between them over 45 million sheep, of which 20 millions belonged to New South Wales. There is reason to believe that in Victoria and South Australia the effects of the drought were quite as disastrous as in New South Wales, while in Queensland they were doubly severe. It is not, therefore, too much to estimate that at least the same proportion of the flocks elsewhere were destroyed as in New South Wales, and that in Australia alone, omitting Tasmania and New Zealand, 9 million sheep perished in a single summer. If we extend our view to Cape Colony, which, with the whole of South Africa, endured a similar calamity, we shall find that over 10 million sheep must have succumbed to the drought of 1877-78, or nearly one-third of the number of sheep supported by the whole of the United Kingdom.— <i>The Colonies and India.</i>
	Another account speaks of the expected failure of the grain crops, and adds, "The kangaroos and wallaby proved so numerous that they alone consumed all that was left green. Water was carted in many cases from 10 to 12 miles."
'78	<i>Cape Colony.</i> Intelligence from the interior of Cape Colony and the Orange Free State represents the country as having suffered most severely from the effects of the prolonged drought. Galekas and Gaikas combined are declared to be incapable at their worst of inflicting a tenth part of the injury on the country which has been caused by the lack of rain. Not only are the cattle and horses described as becoming daily more attenuated, and dying from the want of food and water, but human beings have succumbed to starvation, and numbers of farmers have "trekked"—deserted their lands and homes in search of food for themselves and their flocks. The failure of crops threatened, at last advices, a disastrous famine unless rain speedily fell in abundance. Near the coast the drought gave signs of breaking two months ago, but in the interior the roads were like iron, dams were dried up, springs were failing,

TABLE IV.—*Periods of Excessive Drought and Heat—Contd.*

A.D.	<i>Cape Colony—Contd.</i>
1878	and not a cloud was to be seen in the sky. Of the fruit crops the grapes alone had been saved. Such a state of affairs has not been known since 1862, when a disastrous but less extensive drought occurred. The necessity for works for storing water and for irrigation purposes has been more than ever impressed on the colonists by the serious check which is thus placed on all commercial enterprise throughout the country. The Act passed last year for encouraging irrigation works will tend to the gradual relief, by artificial means, of the natural drawbacks of the country which, in this respect, resembles India or Egypt, being dependent on the periodical rains, and consequent floods, for the production of its wonderfully fertile soil. April.
'78	<i>Barbary.</i> Advices from the coast of Barbary received [May] at Gibraltar, give a gloomy picture of the state of affairs in the town of Casablanca, owing to the drought. Starvation is staring the native tribes of Bedouins in the interior in the face. Their fields are completely parched, and they are in great distress for want of employment. Gaining their subsistence by tilling the ground and gathering in the crops whenever chance offered, these poor Bedouins, who vied with each other in assisting their brethren of the Riff coast last year, are now as badly, if not worse, off than they were. The want of the rain which would enable them to raise fodder causes the holders of cattle to bring them into the town to be disposed of as best they can at any sacrifice. On the 10th bullocks were being offered at \$4 and \$5 each and sheep at 8 vrn., and on the 15th thirty cows were sold for the paltry sum of six pesetas each, and the sheep at 5 vrn. Many head of cattle in a lean condition remained unsold for want of buyers, though offered at half the above price. Grain is reported to be very scarce, and the little that is to be seen in the market is very dear. Rice and flour are being imported from England and France, but up to the present in small quantities. The province of Mogador is in a frightful state of misery owing to the want of rain. People, especially the Hebrews, flock into the town seeking the necessities of life from the charitable. At Tangiers some late showers have done much good by refreshing the fields for the benefit of the cattle.
'78	<i>United States.</i> July. For eleven days past the weather in the Mississippi Valley and in the North-Western States has been excessively hot, the temperature averaging from 90° to 102° in the shade, in some places reaching even 110°. In St. Louis during this period 1,500 persons have been affected by the heat, of whom 150 have died. Most kinds of public work and business generally were suspended during the first half of the present week or done at night. The letter-carrier service was also interrupted during the middle of the day. In many parts of Southern Missouri and Kansas the harvesting has been done by moonlight. At Fort Dodge, Iowa, the thermometer last Tuesday, at sunset, registered 101°, and in Milwaukee on Wednesday it ranged from 90° to 100° in the shade. One hundred and three cases of sunstroke were reported in Chicago on Wednesday, of which thirty-one resulted in death. The same day, throughout the Province of Ontario, in Canada, the thermometer ranged from 90° to 103° in the shade. The hot wave moved slowly eastward, and at Wheeling, West Virginia, the thermometer showed 101° in the shade. On Thursday, in the cities on the Atlantic coast the temperature ranged from 88° to 98° in the shade. A cool wave from the north setting in after the torrid one reached Chicago on Thursday morning.

Note to this table.—Since the termination of Short's observations with the first quarter of the last century, we find no reliable records as to droughts in the United Kingdom.

While upon the subject of drought, it is impossible to ignore one of its principal causes, viz., the denuding the surface of the country of its forest trees. The rainfall in Britain has no doubt over a period of several centuries been gradually reduced in this manner, to the great benefit of the country generally. But when we turn to tropical countries, while the same result of diminished rainfall is produced, it cannot be added that any benefit is conferred. In a recent State paper relating to southern India, I have seen it stated that much mischief is there resulting from this cause. The railways of India have required the timber as fuel for their engines. Is it not alike in the interest of the Government and the railway companies there, that steps be taken for planting forest trees in suitable localities? and there are plenty such available. For another reason in favour of planting, see Table of *Floods*, 1872.

In another able State paper relating to India, and referred to more particularly hereafter, I note the following passage:—

“By proper attention to the replanting of forest trees at the sources of rivers, and by the other planting recommended, wherever it can be carried out, the first step will have been taken towards restoring the climate of India to its former state; regulating the rainfall of the country, rendering the minor rivers, which now often run dry, perennial, and putting an end to, or at least lessening the violence of the floods, which too often do great damage to crops growing in the vicinity of rivers, cause tanks to overflow, and burst their embankments, carry away railway bridges; render river navigation absolutely impossible during their continuance, and otherwise cause loss and destruction, without any compensating advantages whatever. As soon as the drainage of the country is thus brought under proper control, it will no doubt be perfectly practicable to construct irrigation works in many parts where, either from the absence or want of continuous supply of water, they could not at present be introduced. The digging ditches and planting trees beside them is also recommended, and have the joint advantages of at once affording shade and collecting moisture.”

In this connection it may be added that the French Forest Department in the Hautes and Basses Alpes are carrying out extensive planting operations to replace the forests formerly destroyed:—

“So great indeed were the devastations from which these Alpine districts suffered through the demolition of the mountain sides, and the consequent formation of torrents, that intervention of the most prompt description became necessary to prevent the destruction not only of the grazing grounds themselves, but of the rich valleys below them.”

The replanting of these mountains has now been going on for some time:—

“Already the beneficial effect of what has been done is felt in the diminution of the violence of the torrents . . . During the present summer (1875), where so much mischief has been done in the south of France by inundations, the Durance, which rises in the mountains east of Avignon, and which on former occasions has been the worst and most dangerous of all the rivers in the south of France, on account of the inundations it has caused, has scarcely been heard of; and it is around the head waters of this river that the chief plantation works have, during

the last ten years, been carried on.”—(*Extract from Proceedings of Forest Conference held at Simla, October, 1875.*)

It is seen here, as in many other instances, that any rash interference with the economy of nature is attended with disastrous results, not only in one direction, but in several. By the skilful management of the forests, it seems clear that the rainfall of a country may be at once regulated and controlled.

“The Japanese Government, which is making such rapid strides towards modern civilisation, has just awakened to the necessity of preserving its forests, and stringent regulations have been passed, which shall not only hinder the too rapid destruction of the forests, but increase the area covered by woodlands.”—*Nature*.

4. OTHER METEOROLOGICAL PHENOMENA.—Under this head I propose to include *comets, earthquakes, hurricanes, cyclones, violent storms* generally, and *hailstorms*. These latter are usually local in their effects, rarely extending beyond 60 miles in their greatest length, and some 6 miles in width, and generally are confined to much smaller limits. They are most destructive to grain and fruit products of all kinds, when they occur in severe form.

Comets are usually associated, if not with absolute drought, certainly with seasons of excessive heat; but in temperate zones, this excessive heat is not necessarily productive of deficient grain crops, while the fruit crops, and especially the vine, is frequently enhanced not only in quantity but in quality.

Earthquakes would seem to have but little influence in producing famine, except in the immediate locality of their devastation. Where however they have produced irruption of the sea, which has been not unfrequently the case, the damage has sometimes been very widespread.

Hurricanes and storms frequently produce widespread damage in the localities they visit. They also lead to irruptions of the sea, and to the overflow of rivers; but as a rule these occur at periods of the year when the grain and other crops are either not sufficiently advanced to sustain serious damage, or have been harvested.

TABLE V.—*Comets, Cyclones, Earthquakes, Hailstorms, Hurricanes, and Violent Storms generally, Chronologically Arranged.*

B.C.	
1491	<i>Egypt.</i> Among the plagues of Egypt assigned at this date, as set out in the Book of Exodus, chap. vii, viii, ix, and x, were: turning the river into blood; frogs were sent; and lice; a murrain of beasts; boils and blains; hail; locusts; darkness.
'91	<i>Arabia Petra.</i> An earthquake accompanied by thunder and lightning occurred in Mount Sinai on the occasion of the delivery of the Law.—Exod. xix, 18.
'50	<i>Italy.</i> An earthquake in central Italy, which swallowed up a city and produced Lake Ciminus in its place.

TABLE V.—*Comets, Cyclones, Earthquakes, Hailstorms, &c.—Contd.*

B.C.	
1337	"First Comet," supposed to have been discovered at this date by Nicephorus, and was accurately described by him.
506	<i>China.</i> Earthquake in.
464	<i>Sparta.</i> An earthquake in.
429	<i>Greece.</i> An earthquake made Eubœa an island.
373	" An earthquake swallowed up Helice and Bura in Pelopon- nessus.
364	<i>Rome.</i> A chasm opens in the forum, into which Quintius Curtius voluntarily leaps. It afterwards formed a lake.
345	<i>Greece.</i> Duras buried with all its inhabitants by earthquake; and twelve cities in Campania also buried.
285	<i>Japan.</i> A lake 72½ miles long by 12½ wide formed in one night in the Island of Nippon.
283	(?) <i>Lysimachia</i> and its inhabitants buried about this date by earth- quake.
224	<i>Rhodes.</i> The Colossus overthrown by an earthquake. Eusebius dates this catastrophe in B.C. 105.
135	At the birth of Mithridates two large comets appeared, which were seen for seventy-two days together, whose splendour eclipsed that of the mid-day sun, and occupied about a fourth part of the heavens.
33	<i>Palestine.</i> An earthquake in which 30,000 people perish.
A.D.	
17	<i>Asia Minor.</i> Ephesus and other cities overturned by an earthquake.
33	<i>Palestine</i> and <i>Bythnia.</i> On the occasion of the Crucifixion, the city of Nicea was destroyed.
79	<i>Naples.</i> An earthquake accompanied the eruption of Vesuvius when Pompeii and Herculaneum were buried.
105 or 106	<i>Eastern Europe</i> and <i>Asia.</i> Four cities in Asia, two in Greece and two in Galatia overturned by an earthquake.
115	<i>Antioch</i> (Syria) destroyed by an earthquake.
126	<i>Asia Minor.</i> Nicomedia, Cæsarea, and Nicea overturned by earth- quake.
130	<i>England.</i> Hailstorm; stones 12 inches "about," fatal to people and cattle.
157	<i>Macedonia.</i> Earthquake damaging 150 cities and towns; in <i>Asia</i> , the city of Pontus and other places destroyed.
207	<i>England.</i> Hail, "bigger than ducks' eggs."
262	<i>Italy, Asia Minor, &c.</i> An earthquake attended by eclipse of the sun and inundations of the sea.
264	<i>Britain.</i> Hail; each stone one pound or above in weight.
334	<i>England.</i> Hail; "stones like goose eggs; fatal to people and cattle."
344	<i>England.</i> Hailstorm; "stones much bigger than hens' eggs."
358	<i>Asia Minor.</i> Nicomedia again demolished by earthquake, and the inhabitants buried in the ruins; and 150 other cities more or less injured.
359	<i>Bithynia.</i> The city of Nicomedia is destroyed by earthquake.
365	<i>Roman Empire.</i> An earthquake.
459	<i>Britain.</i> Hail in many parts of the country; stones 3 inches in diameter. "Killed many men and much cattle."
464	<i>Sparta.</i> An earthquake.
494	<i>Asiatic Turkey.</i> The cities of <i>Laodicea</i> , <i>Hierapolis</i> , and <i>Tripoli</i> nearly destroyed by earthquake.
506	<i>China.</i> Earthquake in.
526	<i>Antioch.</i> Again reduced to ruins by an earthquake.
543	An earthquake, the effects of which are believed to have been felt over nearly the whole world.
550	<i>Scotland.</i> Hail, "like pullets' eggs."
551	<i>Beyrouit.</i> Destroyed by an earthquake.

TABLE V.—Comets, Cyclones, Earthquakes, Hailstorms, &c.—Contd.

A.D.	
557	<i>Constantinople</i> . A great many of the principal edifices destroyed, and thousands of inhabitants perished by earthquake.
560	<i>Asia and Egypt</i> . Many cities overturned by earthquake.
719	?—"Fiery hail burnt the ships, the sea boiling up."—SHORT. [? Volcanic scoræ.]
742	<i>Syria, Palestine, and Asia generally</i> . Tremendous earthquake; more than 500 towns destroyed, and the loss of life surpassed all calculation.
778	<i>Italy</i> . Earthquake at Trivise; many lives lost.
794	<i>Alexandria</i> . An earthquake which overthrew the Pharos.
801	<i>France, Germany, and Italy</i> . Serious earthquake.
805	<i>South Wales</i> . Hail; each stone like hen's egg.
859	<i>Syria</i> . Upwards of 1,500 houses overturned by earthquake in Antioch. Other towns suffer considerably.
893	<i>India</i> . An earthquake destroys 180,000 lives.
895	<i>York</i> . Hail; stones like ducks' eggs.
936	<i>Greece shaken</i> . <i>Constantinople</i> overthrown by earthquake. [? 986.]
944	<i>England</i> . Great storm raged in and near London, which destroyed 1,500 houses.
1007	<i>Asiatic Turkey</i> . Deinar overthrown by earthquake, and 10,000 people buried in the ruins.
'29	<i>Asiatic Turkey</i> . Half of Damascus destroyed by earthquake.
'40	<i>Persia</i> . Tabriz is reduced to ruins, and 50,000 of the inhabitants destroyed by earthquake.
'48	<i>England</i> . Earthquake felt at Worcester, Derby, and other parts of England.
'81	<i>England</i> . "In the 15th year [of William the Conqueror] a great earthquake happened in the month of April; strange for the strong trembling of the earth, but more strange for the doleful and hideous roaring which it yielded forth."— <i>Harleian Miscellany</i> iii, p. 167.
'89	<i>England</i> . Earthquake shocks felt generally.
'91	" In several parts of the country. Great hurricane from the south-west. In London about 500 houses destroyed. 5th October.
1114	<i>Syria</i> . Antioch, Aleppo, Jerusalem, and many towns destroyed by earthquake.
'37	<i>Sicily</i> . Catania overturned by earthquake; 15,000 persons buried in ruins.
'39	<i>Persia</i> . The city of Gansana destroyed by earthquake, and 10,000 of the inhabitants buried in the ruins.
'42	<i>England</i> . Earthquake severely felt at Lincoln.
'58	<i>Syria</i> . Much destruction by earthquake; 20,000 people killed.
'69	<i>Sicily and Calabria</i> . An earthquake committed great devastation and killed some 15,000 people.
'79	<i>England</i> . Hail, with thunder, lightning, hurricane. 5th June.
'86	<i>Calabria</i> . One of its cities and all inhabitants overwhelmed by earthquake, and engulfed in Adriatic Sea. September.
'90	<i>England</i> . Hail, with thunder and lightning.
1205	" Hail like ducks' eggs; with thunder and lightning. Much grain in fields destroyed.
'13	<i>Italy</i> . Hail like goose eggs.
'15	<i>English Channel</i> . Great hurricane off the coast of <i>Calais</i> . A number of the Norman nobility on their way to assist King John against the barons were wrecked.
'18	<i>France</i> . At Franche Comté a mountain opened and engulfed some 5,000 persons.
'33	<i>England</i> . Great tempests of wind, with rain and thunder for fifteen consecutive days.
'64	A grand comet was seen; its tail was considered to extend 100°. (See 1556.)

TABLE V.—Comets, Cyclones, Earthquakes, Hailstorms, &c.—Contd.

A.D.	
1268	<i>Cilicia</i> (Asia Minor). Tremendous earthquake; over 60,000 people perished.
'74	<i>England</i> . Earthquake felt throughout; Glastonbury destroyed.
'85	" Great storm, "with violent lightnings."
1318	" The most severe earthquake experienced. 14th November.
'37	A remarkable comet seen in England.—Stow.
'53	<i>Italy</i> . An earthquake at Borgo-Sansepolero, and 2,000 people perish.
'59	<i>France</i> . "When Edward III was on his march, within two leagues of Chartres, there happened a storm of piercing wind, that swelled to a tempest of rain, lightning and hailstones so prodigious, as instantly to kill 6,000 of his horses and 1,000 of his best troops."— <i>Old Chronicle</i> .
'82	<i>English Channel</i> . Great storm, which destroyed the ships from which Richard II's queen had just landed (from Bohemia) and many others. January. (See 1396.)
'96	<i>English Channel</i> . Another great storm, on the occasion of the second Queen of Richard II landing.—HOLINGSHEAD.
	<i>Note</i> .—"When Richard II's first wife came [to England in 1382] from Bohemia, she had no sooner set foot on shore, but such a storm immediately arose as has not been seen for many years, when several ships were dashed to pieces in the harbour, and the ship in which the Queen came was shattered and broken; and which was the more noticeable because his second wife brought a storm with her to the English Coast, in which the King's baggage was lost, and many ships of the Fleet cast away."— <i>Old Chronicle</i> .
1456	A comet appeared, and reappearing in 1682, as Halley, the astronomer royal, had predicted, became known as Halley's comet. (See 1682.)
'56	<i>Naples</i> . Great earthquake; 40,000 people perished. 5th December.
'79	<i>St. Neots</i> (Huntingdon). Hailstorm, "when the stones measured 18 inches round."
'91	<i>Grecian Archipelago</i> . Earthquake at Cos; 5,000 persons perish.
1504	<i>India</i> . Great earthquake in Agra. Every lofty building was levelled with the ground, and some thousands of people were buried in the ruins.
'05	<i>India</i> . Dreadful earthquake at Cabul, which laid most of the city in ruins.—Dow's <i>Hindustan</i> .
'09	<i>Constantinople</i> . Earthquake, "thousands perished," 1,700 houses overthrown. 14th September.
'10	<i>Italy</i> . A hailstorm "which destroyed all the fish, birds, and beasts of the country."
'27	<i>Rome</i> . Great hailstorm. 2nd December.
'28	<i>Ausburg</i> . Great hailstorm. 19th July.
'31	<i>England</i> . Great hailstorm. 16th December.
'31	<i>Lisbon</i> . 1,500 houses destroyed by earthquakes, and about 30,000 inhabitants buried in ruins. Several neighbouring towns engulfed. 26th February. (See 1755.) Also felt in <i>Spain</i> .
'35	<i>Zurich</i> . Great hailstorm. 15th July.
'37	<i>Rome</i> . Great hailstorm. 12th December.
'46	<i>Mechlin</i> . Great hailstorm. August.
'48	<i>Louvain</i> . Great hailstorm. 5th September.
'55	<i>London</i> . Great hailstorm. 1st September.
'56	The comet of 1264 was supposed to have reappeared, but with diminished splendour.
'58	<i>Note</i> .—Tycho Brahe demonstrated that comets are extraneous to our atmosphere, 1557.
'63	<i>Cattaro</i> . Suffered from earthquake.
'64	<i>Northamptonshire</i> . Hailstorm, "when the stones measured 15 inches in circumference."
'64	<i>Louvain</i> . Great hailstorm. 24th January.

TABLE V.—*Comets, Cyclones, Earthquakes, Hailstorms, &c.—Contd.*

A.D.	
1564	<i>Essex</i> . Great hailstorm. 17th July.
'66	<i>Chelmsford</i> (<i>Essex</i>). Hailstorm destroyed 500 acres of grain.
'66	<i>England</i> . Great hailstorm. 26th December.
'78	<i>Brazil</i> . Great hailstorm. 7th April.
'80	<i>London</i> . Earthquake; part of St. Paul's and the Temple Church fell. 6th April. Also felt in <i>France</i> and <i>Belgium</i> .
'84	<i>England</i> . Great hailstorm, "stones 8 or 9 inches about."
'89	<i>London</i> . Fresh hailstorms. 18th February; 1st August.
'90	<i>England</i> . Hail, with thunder and snow. September.
'96	<i>Japan</i> . Several cities destroyed by earthquake, and thousands of the inhabitants perished. 2nd July.
'96	<i>Wells</i> . Great hailstorm. December.
1602	<i>Jamaica</i> . Port Royal nearly destroyed by earthquake.
'24-28	<i>Azoris</i> . An island more than a league and a half long raised near St. Michael.
'26	<i>England</i> . Great hailstorms, 29th March. 25th to 30th April.
'26	<i>Naples</i> . Earthquake destroyed thirty towns and villages: 70,000 lives lost. 30th July.
'35	<i>Manila</i> . Earthquake in.
'36	<i>England</i> . Hail, with rain, snow and thunder. 30th January.
'38	<i>Calabria</i> (<i>Naples</i>). "Awful earthquake." 180 towns and villages injured.
'41	<i>England</i> . Hailstorms, 25th June; 14th and 19th August, with rain.
'45	" Hailstorm with rain. 3rd July.
'46	" Hailstorms: 4th May; 11th and 12th July; 17th August.
'50	<i>Leicester</i> . Hailstorm. 29th April.
'51	<i>Dorchester</i> . Hailstorm; stones 7 inches in circumference. 23rd August.
'58	<i>Europe</i> . "The day that Oliver Cromwell died (3rd September) was one [a storm] so violent and terrible that it extended all over Europe."—MORTIMER.
'61	<i>England</i> . Hailstorms. 11th April and 11th October.
'64	<i>London</i> . Great hailstorm at Charing Cross. January.
'66	<i>England</i> . Severe hailstorm and rain. 31st July.
'67	<i>Ragusa</i> . City ruined by earthquake, 5,000 persons perished. 6th April.
'67	<i>Schamaki</i> (<i>Southern Russia</i>). Earthquake shocks extending over three months; 80,000 people perished.
'68	<i>England</i> . Great hailstorm with rain. 17th December.
'72	<i>Rimini</i> (<i>Italy</i>). Earthquake; 1,500 perished. 14th April.
'78	<i>England</i> . Great hailstorm. 18th January.
'79	A comet which terrified the people by its supposed near approach to the earth; was visible from 3rd November to 9th of March following. From observations on this comet, Newton demonstrated that they are subject to the law of gravitation, and probably move in elliptic orbits.
'81	<i>England</i> . Great hailstorm. 1st May.
'82	Halley's comet, so-called from his having made observations sufficient to establish its identity. He predicted its return in 1759, and it came. The revolution of this comet is supposed to occupy seventy-five years. It reappeared in 1835, and is due again in 1910.
'90	<i>Dublin</i> . Severe shock of earthquake. 17th October.
'92	<i>Jamaica</i> . Earthquake destroyed Port Royal, whose houses were engulfed 40 fathoms deep; 3,000 perished. 7th June.
'93	<i>Sicily</i> . Earthquake overturned 54 cities and towns, and 300 villages. Of Catania and its 18,000 inhabitants not a trace remained; more than 100,000 lives lost. September.
'96	<i>England</i> . Great storm on the east coast; 100 coasters and other vessels, and most of their crews, lost.

TABLE V.—Comets, Cyclones, Earthquakes, Hailstorms, &c.—Contd.

A.D.	
1697	<i>Cheshire and Lancashire.</i> "A storm of hail, &c., which killed fowls and small animals, and knocked down horses and oxen; some of the stones weighing half a pound." 29th April.
'97	<i>Hertfordshire.</i> Hailstones fell 14 inches in circumference; destroyed trees and corn in a most dreadful manner; the most terrible one that had ever been known in England; attended with flashes of lightning. 4th May.
1703	<i>Italy.</i> Aquila ruined by earthquake; 5,000 perished. 2nd February.
'03	<i>Japan.</i> Jeddo ruined by earthquake; 100,000 perished.
'03	<i>England.</i> One of the most terrible storms on record; known as the "Great Storm." The devastation on land was immense, while on the coasts and in the harbours the loss of shipping was terrible. The loss of life was very large, and sheep and cattle were drowned by thousands from the floods occasioned, especially in the Severn and Thames valleys. The loss of property in London was estimated at 2,000,000 <i>l.</i> Eddystone lighthouse was destroyed and its constructor (Winstanley) in it. On the coast of <i>Holland</i> great damage was done. 26th and 27th November.
'06	<i>Abruzzo (Naples).</i> Earthquake; 15,000 persons perished. 3rd November.
'16	<i>Algiers.</i> Earthquakes; 20,000 perished. May and June.
'19	<i>Sweden.</i> Great snowstorm, wherein 7,000 Swedes, on their way to attack Drontheim, perished on the mountains.
'20	<i>India.</i> On 20th June a fearful earthquake was felt in Old Delhi. During the day and night nine shocks occurred. Parts of the ramparts were thrown down and damaged, and many persons killed. "It was very wonderful that for a month and two days the shocks continued, and were felt four or five times in the twenty-four hours."—SIR H. ELLIOT'S <i>History of India</i> , vii.
'26	<i>Palermo.</i> City nearly destroyed by earthquake; 6,000 lives lost. 1st September.
'27	<i>Persia.</i> Tabriz overwhelmed by earthquake; 77,000 persons perish.
'31	<i>China.</i> Peking destroyed by earthquake; about 100,000 people swallowed up. 30th November.
'32	<i>Naples.</i> Great destruction by earthquake; 1,940 persons perished. 29th November.
'37	<i>India.</i> Great storm. "Many hundreds of vessels cast away;" a fleet of Indiamen greatly damaged. Some 30,000 persons are believed to have perished. 11th October.
'45	<i>Yorkshire.</i> Hailstorm; stones 5 inches round. May.
'46	<i>South America.</i> Lima and Callao demolished by earthquake; 18,000 persons buried in the ruins. 28th October.
'50	<i>London.</i> Slight shock of earthquake. 19th February.
'50	<i>Ionian Islands.</i> At Cerigo 2,000 persons perish by earthquake.
'51	<i>St. Domingo.</i> Port-au-Prince destroyed by earthquake. 21st November.
'52	<i>Turkey.</i> Adrianople nearly overwhelmed by earthquake. 29th July.
'54	<i>Egypt.</i> Grand Cairo half destroyed by earthquake; about 40,000 of the inhabitants engulfed. September.
'55	<i>Egypt.</i> The city of Grand Cairo completely destroyed by earthquake. April.
'55	<i>Kaschan (N. Persia)</i> destroyed by earthquake; 40,000 perished. 7th June.
'55	<i>Lisbon.</i> The great earthquake of. In about eight minutes most of the houses and 50,000 of the inhabitants were swallowed up.
'55	The cities of Coimbra, Oporto, and Braga (also in <i>Portugal</i>) suffered dreadfully, and St. Nebes was wholly overthrown.
'55	In <i>Spain</i> a large part of Malaga became ruins.
'55	In <i>Morocco</i> one half of the city of Fez was destroyed, and 12,000 Arabs perished.

TABLE V.—Comets, Cyclones, Earthquakes, Hailstorms, &c.—Contd.

A.D.	
1755	<i>Madeira</i> . About half the island became waste.
'55	In the Island of <i>Metelene</i> , in the Archipelago, about 2,000 houses were overthrown.
'55	This earthquake was felt as far as 5,000 miles away, and was distinctly experienced in <i>Scotland</i> . 1st November.
'59	<i>Syria</i> . Shock of earthquake extended over 10,000 square miles. Baalbec destroyed, and in this city 20,000 perished. 30th October.
'65	<i>Hungary</i> . Comorn, Pesth, &c., much damaged by earthquake. 28th June [? 1763].
'66	<i>England</i> . 15th February. Great snow storm in Nottinghamshire, which lasted fifty hours. In other parts of England rain storms, which froze upon the trees, and caused great destruction of timber; the immense weight breaking off the largest arms and branches.
'66	<i>England</i> . Earthquake shock in Glamorganshire.
'67	"The snow was so deep throughout the whole kingdom that the like has not been remembered by the oldest man living; many people have perished; cattle and horses have been buried and dug out; the stage waggons have been delayed; the postboys have been bewildered, and some frozen to death; in short the severity of the season is universally felt; and the distresses of the poor in many places are inexpressible."— <i>Gentleman's Magazine</i> , February.
'67	<i>France</i> . 8th April. A dreadful storm of thunder and lightning did considerable damage at <i>Provence</i> . The lightning set fire to the Royal Abbey of St. James's, by which one of the main beams in the steeple was burnt, so as to give way in the angle. Two other churches were set on fire in the neighbourhood; the bells of one melted, and the other was entirely consumed.
'67	<i>Martinico</i> . Damaged by earthquake; 1,600 perished. August.
'68	<i>Havannah</i> . Dreadful hurricane; 4,048 houses and many public edifices destroyed. About 1,000 inhabitants perished. 25th October.
'69	<i>England</i> . "Last month [April] we had such a series of cold turbulent weather, such a constant succession of frost and snow, and hail, and tempest, that the regular migration or appearance of the summer birds was much interrupted."— <i>WHITE'S Selborne</i> .
'69	<i>An Historical Narrative of the Great and Tremendous Storm which happened on 26th November, 1703</i> . [This forms part of vol. ii of "City Remembrances," published this year.]
'69	A most brilliant comet appeared, and was calculated to pass within 2 millions of miles of the earth. This comet was seen in London; it was moving with immense velocity, and its tail formed a luminous arch in the heavens, supposed to be 36,000,000 miles in length.
'73	<i>Leeds</i> (Yorkshire). Hailstones as large as nutmegs. 20th June.
'72	<i>St. Jago</i> (Cuba). Hailstones as large as oranges. 16th July.
'73	"A violent gale of wind (22nd February), made havoc among the shipping in the British Channel. It is more than twenty years since the like happened in this island."— <i>Gentleman's Magazine</i> .
'73	26th February. It blew a hurricane in <i>London</i> , by which the shipping in the Thames is said to have sustained damage to the amount of 50,000 <i>l</i> .— <i>Ibid</i> .
'73	<i>Guatemala</i> . Santiago with its inhabitants swallowed up by earthquake. 7th June.
'74	<i>Alençon</i> (France). Hailstorm; stones measured 18 inches round. 3rd August.
'75	<i>England</i> . Awful storm in North of England; many vessels destroyed; four Dublin packets lost. 29th October.
'76	<i>Holland, Antwerp, &c</i> . Hailstorm; stones as large as hen's eggs, and weighed three-quarters of a pound; horses killed, and the fruits of the earth destroyed. 11th June.

TABLE V.—Comets, Cyclones, Earthquakes, Hailstorms, &c.—Contd.

A.D.	
1778	<i>Smyrna</i> . Destructive earthquake. 3rd July.
'80	<i>Tabriz</i> (Persia). Earthquake; 15,000 houses thrown down, and multitudes of people buried.
'82	<i>India</i> . Great storm at Surat; about 7,000 inhabitants destroyed. 22nd April.
'82	<i>Surat</i> . "At Surat, a Dutch settlement lately taken by the English, a most dreadful hurricane arose, which carried all before it; neither man, horses, nor sheep could be saved. The storm began from the S.E. and ended N.W. with the same fury. The whirlwind swept into the sea more than 3,000 inhabitants, who in the first moments had taken refuge between Surat and <i>Domus</i> ."— <i>Gentleman's Magazine</i> , January, 1873.
'82	<i>France</i> . Hailstorm; stones weighed 8 ozs. 17th June.
'82	<i>Madrid</i> . A violent hailstorm. "Some of the stones weighed a pound." 6,000 <i>l.</i> of damage to windows.
'83	<i>Italy and Sicily</i> . Messina and other towns thrown down by earthquake. "Thousands perished." 5th February.
'83	<i>Spain</i> . 23rd December and seven days following. Dreadful storms, accompanied by rains, "so excessive as to create impassable inundations, so that many villages and part of the flat countries have been reduced to the greatest distress." Floods particularly severe at Seville. Great number of shipwrecks on coast.
'83	<i>England</i> . Great storm of thunder and lightning in Hants and Wilts (25th November); also about this period great storms of wind and rain of "remarkable violence."
'84	<i>England</i> . January and February. Great snow storms, especially in northern York, and in parts of the midland counties. Barnard Castle and Northampton suffered severely. These storms were accompanied with intense frost.
'84	<i>Scotland</i> . Excessive falls of snow extending over nearly a month daily.
'84	<i>France</i> . 17th January. A violent storm at Rochelle, accompanied by an earthquake, thunder, lightning and hail; great damage done to houses and trees. The towns of Nantes and Rochefort much injured; and many ships lost on the coasts.
'84	<i>Europe</i> . Storms and excessive cold were reported from <i>Smyrna</i> , <i>Vienna</i> , <i>Nimeguen</i> , <i>Cologne</i> , <i>Naples</i> (great floods), <i>Leghorn</i> , <i>Rome</i> , <i>Lisbon</i> , <i>Amsterdam</i> .
'84	<i>Pyrenees</i> . Hailstorm; stones as large as hen's eggs, some weighing 23 ounces. 18th July.
'84	<i>Armenia</i> . Euxinian (near Erzeroum) destroyed, and 5,000 buried in ruins by earthquake. 23rd July.
'85	<i>Paris</i> . Severe hailstorm. 1st July.
'85	<i>France</i> . Storm. "131 villages and farms laid waste."
'86	<i>Italy</i> . Hailstones as big as hen's eggs. 17th July.
'86	<i>North Shields</i> . Great hailstorm. 16th August.
'87	<i>Normandy</i> . Hailstones as big as hen's eggs. 4th August.
'88	<i>France</i> . "Hail fell as large as a quart bottle; and all the trees from Vallence to Lisle were torn up or destroyed." 13th July.
'88	<i>West Indies</i> . St. Lucia destroyed by earthquake; 900 perished. 12th October.
'89	<i>Tuscany</i> . At Borgo di San Sepolero, an earthquake. Many houses and 1,000 persons swallowed up. 30th September.
'91	<i>Italy</i> . A violent hailstorm. June.
'91	<i>England</i> . Several violent hailstorms. June.
'91	<i>Calabria</i> (Naples). Violent hailstorm; stones weighed one English pound; destroyed the vintage. September.
'91	<i>Sussex</i> . Severe hailstorm. October.
'91	<i>Thornton</i> (Leicestershire). Hailstorm; great damage. 3rd August.
'93	<i>Japan</i> . 1st April. Earthquake near the volcano <i>Illigama</i> (which threw forth torrents of water), destroyed 53,000 persons.

TABLE V.—Comets, Cyclones, Earthquakes, Hailstorms, &c.—Contd.

A.D.	
1793	<i>Jamaica</i> . Hailstones as large as pigeon's eggs. 2nd July.
'94	<i>South America</i> . The whole country between Santa Fé and Panama desolated by an earthquake. The cities of Cuzco and Quito destroyed, and 40,000 people buried, in what appeared but one second of time. 4th February.
'94	<i>Naples</i> . Vesuvius overwhelmed the city of Torre del Greco. June.
'94	<i>Britain</i> . Great storm prevailed throughout; several hundred sail of shipping destroyed. 6th October.
'95	<i>Essex and Herts</i> . A storm of hail which did great damage. 12th June.
'96	<i>Asia Minor</i> . Earthquake; 1,500 lives lost.
'97	<i>Peru</i> . Quite overthrown by earthquake, burying 40,000 persons. 4th February.
'97	<i>London</i> . Hailstorm; did great damage to the gardens round the Metropolis. 6th May.
'97	<i>Lewes (Sussex)</i> . Severe and destructive hailstorm. 6th May.
'97	" Another hailstorm; stones weighed from 4 to 7 ounces. 5th June.
'97	<i>Cumana (South America)</i> . Ruined by earthquake. 14th December.
1800	<i>Oxfordshire and Bedfordshire</i> . Hailstorm at Heyford (Oxen); irregular pieces of ice the size of hen's eggs fell. In Bedfordshire hares and partridges were killed in the fields. 19th August.
1800	<i>Constantinople</i> . The Royal Palace and many buildings were destroyed by earthquake. 26th September.
1800	<i>England</i> . Great storm inflicting serious damage in various parts, and especially in London. 3rd November.
'02	<i>Eastern Europe</i> . Earthquake shock extended from Cronstadt to Constantinople. 26th October. The shocks were most violent in the Danubian Principalities.
'03	<i>London</i> . Dreadful hailstorm in Haymarket, and two or three adjoining streets, without the least appearance of hail in the other parts of London. "A fire-ball fell in Oxenden-street which tore up the pavement." 9th June.
'04	<i>Holland</i> . Severe earthquake shock. End of January.
'04	<i>India</i> . Severe hailstorms in Allahabad; early in year.
'05	<i>Naples</i> . Earthquake at Frosolone; 6,000 lives lost; also throughout <i>Calabria</i> ; 20,000 lives lost.
'08	<i>Piedmont</i> . Earthquake shocks; and in valley of the Rhone.
'08	<i>Somersetshire</i> . Great storm, accompanied with hailstones, measured 6 and 7 inches in circumference. 15th July.
'10	<i>Azores</i> . A village of Las Casas, in the island of St. Michael's, sunk, and a lake of boiling water appeared in its place. 11th August.
'11	A remarkably conspicuous comet appeared. Its length on 15th October was estimated by Herschel to be 100,000,000 miles. It was visible all the autumn.*

* The vintage of 1811 has now acquired a peculiar celebrity, and the good wine produced that year all over France has been generally attributed to the influence of the comet. It is strange that its excellence was not recognised at the time, but France was passing through too anxious a crisis to care much for choice wines, and these vintages were in the autumn of the following year freely sold at from 1,200 frs. a cask to 1,500 frs. a cask. In 1868 there was a sale of the cellars of Château Lafite, including much of the comet claret. The auction took place on the 27th October, and as these were the days of the luxury of the Second Empire high prices were realised. The lots were started at 20 frs. a bottle, and the bidding went up to 121 frs., at which price an hotel keeper at Bordeaux bought a large quantity. Bottles of this wine were exposed in the windows of the hotel afterwards at the sensation price of 150 frs. or about 72*l*. a dozen. In the meantime the comet claret has been growing scarcer every

TABLE V.—*Comets, Cyclones, Earthquakes, Hailstorms, &c.—Contd.*

A.D.	
1812	<i>Venezuela</i> . The city of Leon de Caracas destroyed by earthquake; nearly 12,000 persons perished. 26th March.
'18	<i>Bedfordshire</i> . Great storm of thunder, lightning, and hail, with fire-ball which set fire to buildings. October.
'14	<i>England and Ireland</i> . A tremendous storm, by which great damage was occasioned, and many ships wrecked. 16th and 17th December.
'16	<i>England</i> . An awful gale, by which a great number of vessels were lost, and much damage done on the coasts. 31st August.
'16	<i>Cumberland and Westmoreland</i> . Great storm of wind and hail desolated these counties. August.
'17	<i>China</i> . Chang-Ruh is overthrown by earthquake; 2,800 persons buried in the ruins. April.
'18	A comet appeared, which became known as Encke's. It makes its revolution in three years and fifteen weeks.
'18	<i>Turkey</i> . The city of Philipopolis said to be entirely engulfed by earthquake. March.
'19	<i>India</i> . Several earthquakes; district of Kutch sunk, 2,000 persons buried. 16th June.
'19	<i>Italy</i> . Genoa, Palermo, Rome, and many other cities and towns greatly damaged by earthquakes; "thousands perished."
'19	<i>Greece</i> . Vostitza, the ancient Ægium, destroyed by earthquake.
'19	<i>West Indies</i> . Dreadful hurricane ravaged Leeward Islands. At the Island of St. Thomas alone 104 vessels were lost. 20th—22nd September.
'21	<i>England</i> . Great storm along the coast from Durham to Cornwall; many vessels lost. November.
'22	<i>Costa Rica</i> . The town of Carthago overthrown by earthquake. 7th May.
'22	<i>India</i> . Great cyclone in Bombay; as many as 100,000 of the inhabitants destroyed by the tidal wave, and probably an equal number of cattle. The loss of property in other respects impossible of estimate.
June 6	
'22	<i>Aleppo</i> (Syria). Destroyed by earthquake; above 20,000 perished. Shocks on 10th and 13th August and 5th September.
'22	<i>Chili</i> . Coast permanently raised by earthquake. 19th November.
'22	<i>Ireland</i> . Great storm and considerable destruction of property, particularly in neighbourhood of Dublin. 12th December.
'23	<i>England</i> . Another comet appeared.
'24	<i>Manila</i> . An earthquake in.
'25	<i>Algiers</i> . This city and Blida injured by earthquake; 7,000 lives lost.
'26	<i>England</i> . A comet known as Biela's appeared, and was remarkable for the nearness with which it approached, not the earth, but the earth's path. Its revolution is performed in six years and thirty-eight weeks. It appeared again in 1838, 1839, 1845, and 1852, since which it has been seen no more.
'27	<i>India</i> . Fort Kolitaran, near Lahore, destroyed by earthquake; about 1,000 lives lost.
'27	<i>Columbia</i> (South America). Some very destructive earthquake shocks.
'28	<i>England</i> . Awful storm on English coast; many vessels lost. 12th and 13th January.
'28	<i>Gibraltar</i> . Great storm; more than 100 vessels destroyed. 18th February.

day, and at a great wine sale just concluded (January, 1878) in Paris the "gems of the collection" were two bottles of the famous vintage. The price rose rapidly, and it was evident that many purchasers were eager to make an investment. At last the ultimate fate of the bottles rested between two restaurants, and the bidder at 620 frs. was declared the purchaser. That the proprietor of a café on the boulevards should pay nearly 25*l.* for two bottles of claret shows that the reign of luxury is not yet over in Paris.

TABLE V.—Comets, Cyclones, Earthquakes, Hailstorms, &c.—Contd.

A.D.	
1828	<i>Peru.</i> Earthquake shock; scarcely a house in Lima or Callao escaped injury. 30th March.
'29	<i>Spain.</i> A very destructive earthquake in Murcia, attended with fearful destruction of life and property. 21st March.
'30	<i>China.</i> Canton and neighbourhood suffered from earthquake; above 6,000 perished. 26th and 27th May.
'31	<i>Cape of Good Hope.</i> Dreadful storm; immense damage to property. 16th July.
'34	<i>Parma</i> (Duchy of). Above forty shocks of earthquake at Borgotaro; and at Pontermoli many houses thrown down. 14th February.
'35	<i>Chili.</i> The city of Conception, Santiago, and other towns destroyed by earthquake. 20th February.
'35	<i>Calabria</i> (Naples). Coxenza and villages destroyed; 1,000 persons buried in the ruins by earthquake. 29th April.
'35	<i>Calabria.</i> Earthquake at Castiglione; 100 persons perished. 12th October.
'37	<i>Syria.</i> The town of Saphit and many villages destroyed by earthquake. 1st January.
'38	<i>England.</i> Slight earthquake shock at Shrewsbury. 17th March.
'38	" Great hurricane visited London and neighbourhood; considerable destruction of property; but very little loss of life. 28th October.
'39	<i>England and Ireland.</i> Awful hurricane on West Coast and in Ireland. Through Cheshire, Staffordshire and Warwickshire the damage immense. Many vessels wrecked, some of great value. In Limerick, Galway, Athlone, and other places, many houses destroyed; and the destruction was extended by fires. Dublin suffered much. The southern portions of England escaped. 6th and 7th January.
'39	<i>Martinique.</i> Nearly half of Port Royal destroyed by earthquake; about 700 killed and the whole island damaged. 11th January.
'30	<i>Ternate.</i> The island laid waste by earthquake, and thousands of lives lost. 14th July.
'40	<i>St. Domingo.</i> Earthquake at Cape Haytien, which destroyed nearly two-thirds of town; between 4,000 and 5,000 lives lost. 7th May.
'40	<i>Armenia.</i> "Awful and destructive earthquake at Mount Ararat; 3,137 houses overthrown, and several hundreds of persons perished." 27th July.
'40	<i>Zante.</i> Great earthquake, many persons perished. 30th October.
'42	<i>India.</i> Earthquake destroyed fortifications at Jellalabad. 19th February.
'42	<i>St. Domingo.</i> Earthquake demolished the town of Cape Haytien, and destroyed not fewer than 10,000 lives. A fire broke out afterwards, blowing up the powder magazine, and with it the inhabitants who had escaped the first effects of the earthquake. 7th May.
'43	<i>England.</i> Terrific hailstorm in <i>Norfolk</i> , causing great devastation of the crops through the county. A voluntary county rate was made in favour of the sufferers. Out of these events grew the <i>General Hailstorm Insurance Society</i> of <i>Norwich</i> .
'43	<i>West Indies.</i> Destructive earthquake, destroying much property at Antigua, St. Thomas, and St. Christopher. <i>Pointe-à-Pitre</i> , <i>Guadeloupe</i> , was entirely destroyed, and many hundreds of persons buried in the ruins. 4th February.
'43	<i>England.</i> Earthquake shocks in North and in Scotland. 10th March.
'43	<i>Germany.</i> Earthquake shocks. 25th December.
'45	<i>Java.</i> Severe earthquake shocks. 8th February.
'45	<i>Mexico.</i> The city is much damaged by earthquake shocks. 7th April.

TABLE V.—*Comets, Cyclones, Earthquakes, Hailstorms, &c.—Contd.*

A.D.	
1846	<i>Norway.</i> Earthquake more destructive in its consequences than any previously recorded. 14th November.
'47	<i>Mexico.</i> The city of Attixco destroyed by earthquake, with great loss of life. 23rd October.
'51	<i>Rhodes and Macri.</i> Earthquakes. A mountain fell at the latter place, crushing a village and destroying 600 persons. 28th February and 7th March.
'51	<i>Valparaiso.</i> More than 400 houses destroyed by earthquake. 2nd April.
'51	<i>Italy.</i> Earthquake; much damage all through the Peninsula. Amalfi almost laid in ruins, and 2,000 inhabitants overwhelmed; 14,000 lives lost in various parts. 14th August.
'52	<i>St. Jago (Cuba).</i> Earthquake destroyed southern part of city and many inhabitants. 20th August.
'52	<i>Philippine Islands.</i> Manila injured by earthquake. 16th—30th September.
'52	<i>England.</i> Slight shock of earthquake in north-west; also felt in <i>Ireland.</i> 9th November.
'52–53	<i>England.</i> In December and January many storms of great severity, with much destruction of property.
'53	<i>Persia.</i> The city of Shiraz destroyed by earthquake, about 10,000 inhabitants overwhelmed. 4th May.
'53	<i>Venezuela (South America).</i> City of Cumana destroyed by earthquake. As many as 800 persons buried in ruins. An entire company of artillery, with Colonel Percy, perished in their quarters. 15th July.
'53	<i>Greece.</i> Thebes nearly destroyed by earthquake, and shocks in other parts. 18th August.
'54	<i>South America.</i> St. Salvador destroyed by earthquake. One-fourth of the inhabitants destroyed. 16th April.
'54	<i>Black Sea.</i> Great storm, causing much loss of life and destruction of shipping and stores sent for allied armies in Crimea. 13th—16th November.
'54	<i>Japan.</i> Anasaka and Simoda (in Nippon) destroyed by earthquake; Jeddo much injured. 23rd December.
'54	<i>North of Europe.</i> Great storm; considerable damage. 31st December.
'55	<i>Turkey.</i> Broussa nearly destroyed by earthquake. 28th February.
'55	<i>Central Europe.</i> Several villages destroyed by earthquake. 25th and 26th July.
'55	<i>Japan.</i> Jeddo nearly destroyed by earthquake, 30,000 inhabitants overwhelmed. 11th November.
'56	<i>Moluccas Islands.</i> (On the Great Tanager.) Earthquake and volcanic eruption; nearly 3,000 lives lost. 2nd March.
'56	<i>Mediterranean.</i> An earthquake extensive in its operation and destructive in its effects, felt on the islands and eastern shore. In the city of Valetta scarcely a building escaped injury; at Civita Vecchi the dome of the cathedral was rent; at Thyree and Candia the ruined buildings took fire, and many lives were lost. Trifling damage at Cairo and Alexandria. 12th October.
'57	<i>Scotland.</i> Great storm on north-east coast; many fishing boats lost. 23rd November.
'57	<i>Naples (Italy).</i> An earthquake, extending from the Mediterranean to the Adriatic, with varying violence, but inflicting the greatest damage at Calabria, in Naples. "Complete villages were engulfed in the yawning fissures." It was thought that as many as 10,000 lives were sacrificed. 16th December.

Note.—In the course of seventy-five years, from 1783 down to this date, the kingdom of Naples lost at least 111,000 inhabitants by the effects of earthquakes, or more than 1,500 per annum, out of an average population of 6,000,000.—LAGAITA.

TABLE V.—*Comets, Cyclones, Earthquakes, Hailstorms, &c.—Contd.*

A.D.	
1858	<i>Corinth</i> nearly destroyed by earthquake. 21st February.
'58	Donati's comet appeared at Florence. It was believed to be near coming into collision with Venus.
'59	<i>Quito</i> (Ecuador). About 5,000 persons killed, and an immense amount of property destroyed by earthquake. 22nd March.
'59	<i>Armenia</i> . Earthquake at Erzeroum; thousands perished. 2nd June, 17th July.
'59	<i>England</i> . Dreadful storm on 25th and 26th October. The "Royal Charter," and many other vessels lost. Another great storm on 31st October and 1st November.
'59	<i>England</i> . Slight shock of earthquake in Cornwall. 21st October.
'59	<i>San Salvador</i> . Many buildings destroyed by earthquake. 8th December.
'60	<i>England</i> . Slight shock of earthquake in Cornwall. 13th January.
'60	" Great storm in Channel, causing much loss of life and property. 1st January. Dreadful gales 26th—28th February, 28th May, and 2nd June.
'61	<i>England</i> . Great gales; part of Crystal Palace blown down; Chichester Cathedral steeple fell. 20th and 21st February.
'61	The comet of this year first discovered at Sydney, in Australia, is known as the "Great Comet." It was afterwards seen in France and England. It was supposed to travel 10,000,000 of miles in twenty-four hours. On 30th June it was suggested that we (in England) were in the tail, there being "a phosphorescent auroral glare."
'61	<i>South America</i> . Earthquake; the cities of Mendoza, San Juan, and San Louis, all populous towns in the Argentine Republic, destroyed. The first and principal shock occurred about 8 P.M., succeeded by other shocks which spread over the three following days. The total number of lives lost was at a minimum estimate put at 15,000. Not only were the cities overturned, but the entire district was broken up, rivers being turned from their courses and roads and bridges broken up in one general ruin. In the Jesuit church of Mendoza, where a large number had gathered for evening service, the roof and walls fell down, and enclosed the worshippers in one vast sepulchre. 20th—23rd March.
'61	<i>Italy</i> . In Perugia, earthquake; several lives lost. 8th May.
'61	<i>Britain</i> . Great storm, British coasts—14 wrecks, 28th May; and 18th and 14th November, storm on north coast. Fifty wrecks.
'61	<i>Greece</i> . North Morea, Corinth, &c., injured by earthquake. 26th December.
'62	<i>England</i> . Great hailstorm, from 6 to 7 feet deep, at Market Laver-ton (? Somerset); much damage to crops. 2nd September.
'62	<i>England</i> . Great storm on British coasts; many wrecks. 19th and 20th October.
'62	<i>Guatemala</i> . Earthquake destroyed 115 buildings and 14 churches. 19th December.
'63	<i>England</i> . Extensive gales, accompanied by numerous wrecks. 19th January.
'63	<i>Rhodes</i> . Thirteen villages destroyed by earthquake. About 300 lives lost, and much cattle and property destroyed. 22nd April.
'63	<i>Philippine Islands</i> . Immense destruction of property at Manila by earthquake; and about 10,000 persons perished. 2nd and 3rd July.
'63	<i>England</i> . Central, west, and north-west, earthquake shocks. 6th October.
'64	<i>Mexico</i> . Earthquake shock on 3rd October.
'64	<i>India</i> . Great cyclone at Calcutta; immense damage done on land and sea; great part of city laid waste; about 200 ships were reported to be lost, and about 70,000 persons perished. Whole towns nearly destroyed. 5th October.
'64	<i>Lisbon</i> . Great hurricane; much damage. 13th December.

TABLE V.—*Comets, Cyclones, Earthquakes, Hailstorms, &c.—Contd.*

A.D.	
1865	A fine comet appeared in the southern hemisphere, and was visible in South America and Australia.
'65	<i>England.</i> Severe gales; great damage to shipping. 14th January.
'65	<i>Sicily.</i> Earthquake shock at Macchia, Bendinella, &c. (on slope of Mount Etna), 200 houses destroyed; 64 persons killed. 18th July.
'66	<i>England.</i> Severe gales; many vessels and lives lost. 6th—11th January.
'66	<i>Roumelia.</i> An earthquake overthrew 200 houses at Avlona. March.
'66	<i>France.</i> Slight earthquake shock near Tours and Blois. 14th September.
'66	Great cyclone in the <i>Bahamas</i> , at Nassau, New Providence; above 600 houses and many churches and other buildings thrown down; between 60 and 70 persons killed, and a great many ships dismantled. 1st and 2nd October.
'67	<i>Cephalonia.</i> Earthquake at Argostoti; above 50 persons perished. 4th February.
'67	<i>Mitylene</i> (Asia Minor). Earthquake; about 1,000 killed. 8th and 9th March.
'67	<i>Java.</i> Town of Djocja destroyed by earthquake; above 400 perished. 10th June.
'67	<i>West Indies.</i> A dreadful hurricane off St. Thomas. The Royal mail steamers "Rhine" and "Wye" entirely wrecked. The "Conway" and "Derwent" and above fifty other vessels driven ashore, and about 1,000 persons lost their lives. 29th October.
'67	<i>Calcutta.</i> Another cyclone. About 30,000 native huts swept away by the tidal wave; but only about 1,000 lives lost. 1st November.
'67	<i>England.</i> Destructive gales. 2nd—4th December.
'68	" Severe gales and destruction of shipping. 22nd and 31st January and 1st February.
'68	<i>Central America.</i> The cities of Arica, Arequipa, Iquique, Tacna, and Chenchu, and many small towns in Peru and Ecuador, destroyed by earthquake; about 25,000 lives lost, and 30,000 rendered homeless. The sea in many places retired a space and then rushed over the towns, destroying shipping and houses; loss of property estimated at 60,000,000 <i>l.</i> 13th—15th August.
	<i>Note.</i> —About 11,000 <i>l.</i> was collected in London to relieve the sufferers.
'68	<i>California.</i> Earthquake shocks at San Francisco. 21st October.
'68	<i>England.</i> Slight earthquake shocks felt at Bath, Swansea, and Leamington. 31st October.
'68	<i>Germany.</i> Earthquake shock at Cologne. 17th November.
'69	<i>Indian and Pacific Seas.</i> Severe earthquake shock. 15th January.
'69	<i>England.</i> Great storms and loss of shipping. 11th and 12th September.
'69	<i>Ionian Islands.</i> The town of Santa Mura destroyed by earthquake. 18th December.
'70	<i>Quebec</i> (Canada). Slight earthquake shock. 20th October.
'70	<i>Calabria</i> (Naples). Several villages destroyed by earthquake. Early in October.
'71	<i>Darmstadt.</i> Earthquake shock. 10th February.
'71	<i>England.</i> Slight shock of earthquake in north-west and Yorkshire. 22nd March.
'71	<i>West Indies.</i> Cyclone desolated Antigua, St. Kitts, and other islands; many buildings destroyed. 21st August.
'72	<i>England.</i> Barometer very low; great storm; much damage. 24th January.
'72	<i>California.</i> Several small towns destroyed by earthquakes. 26th and 27th March.

TABLE V.—Comets, Cyclones, Earthquakes, Hailstorms, &c.—Contd.

A.D.	
1872	<i>Antioch.</i> Violent earthquake; shook foundations of city, again laying greater part in ruins. 3rd April.
'72	<i>India.</i> Destructive cyclone at Madras; ships lost. 1st May.
'72	<i>England.</i> After several days' intense heat, violent storms, and deluges of rain in the midland and southern counties. 24th—26th June. Other storms in July and August. Violent gale. 8th December.
'72	<i>Europe.</i> In the Memoir of Alfred Smee, F.R.S., there occurs the following passage: "The intensity and violence of the storms throughout Europe this summer naturally attract general attention."
'73	<i>India.</i> Lehree, Eastern Catchi, Sind, destroyed by earthquake; about 500 persons killed. 14th and 15th December.
'73	<i>San Salvador</i> (Brasil) nearly destroyed by earthquake; about 50 killed; the rest escaped through timely warning. 19th March.
'73	<i>North Italy.</i> Earthquake shock; buildings destroyed and lives lost in Venetia. 29th June.
'73	<i>Scotland.</i> "Awful storm;" much loss of life and property. 22nd and 23rd July.
'73	<i>England.</i> Great storms in Lancashire and Yorkshire. 16th December.
'74	Coggia's comet was discovered at Marseilles. It gradually increased in brightness, but passed out of sight in Europe. It appeared very brilliant at Melbourne.
'74	<i>London.</i> Awful storm; buildings fired by lightning; lives lost; railways flooded, &c. 11th July.
'74	<i>Spain.</i> At Azagra landslip produced by earthquake; killed 200 people. 22nd July.
'74	<i>Guatemala.</i> Antigua and other places destroyed by earthquake. 3rd September.
'74	<i>Hong Kong.</i> Great typhoon at Macao. 22nd September.
'74	<i>England.</i> Violent gales, with destruction of life and property. 31st October, 29th November, 7th, 8th, 10th and 11th December.
'75	<i>Scotland.</i> Severe snowstorms, loss of life. 1st and 3rd January.
'75	<i>Asia Minor.</i> Karsa Hissa, and other places destroyed by earthquake; great loss of life. 3rd and 5th May.
'75	<i>Smyrna.</i> Earthquake, many perish. 12th May.
'75	<i>Chili.</i> San Jose de Cucuta, and other towns near Colomabo destroyed by earthquake; about 14,000 lives reported to be lost. 16th and 18th May.
'75	<i>Buda-Pesth.</i> Destructive storms; about 200 persons killed. 26th June.
'75	<i>Geneva.</i> Violent hailstorm; great destruction of glass and crops. 7th and 8th July.
'75	<i>West Indies.</i> The Isle of St. Vincent swept by a hurricane of unusual severity. Much damage.
Sept. 9	
1875	<i>Texas.</i> Great storm at Gaveleston, Indianapola, and other places; houses and villages washed away, and great loss of life. 15th—18th September.
'75	<i>England.</i> Whirlwinds in Isle of Wight cause great destruction; also hurricane in Oxfordshire.
Sept. 28	
1875	<i>India.</i> Lahore and vicinity sustained earthquake shock; property destroyed and lives lost. 12th December.
'76	<i>Vienna.</i> Shocks of earthquake along banks of Danube. 17th July.
'76	<i>Sicily.</i> Severe shocks of earthquake at Messina. 18th September.
'76	<i>India.</i> Great cyclone in Bengal. A tidal wave, extending, it was estimated, over 3,000 square miles, being in many places more than 20 feet deep. The loss of life was estimated at 215,000, while the destruction of property was incalculable.
Oct. 31	

TABLE V.—Comets, Cyclones, Earthquakes, Hailstorms, &c.—Contd.

A.D.	
1876	<i>India.</i> The district of Baharganj (the delta thrown out by the united waters of the Ganges) desolated by a cyclone.
Nov. 7	
1877	<i>South America and Sandwich Islands.</i> Simultaneous destruction of Iquiqua, Peru, and Hilso, Sandwich Islands, by an earthquake and tidal wave. 10th May.
'78	<i>Indian Ocean.</i> A cyclone devastated the island of Bourbon, and the next crops, it is feared, will show a considerable deficiency.
Jan. 15	
1878	<i>Tahiti.</i> A terrible hurricane, by which much property was destroyed, and about 120 lives lost.
Feb. 7	
1878	<i>England.</i> A tornado in south of England, followed by snow. It was during this that Her Majesty's ship "Eurydice" was lost off the Isle of Wight.
March 29	
1878	<i>England.</i> Terrible gale in the early days of this month. The <i>East Anglian Daily Times</i> , in describing the effects of the gale upon Lowestoft fishing boats, said that upwards of 200 lost every net they had on board, and out of 500 boats only 100 are now fit for sea.
April	
1878	<i>Canton.</i> A destructive hurricane, accompanied by two waterspouts, caused immense damage here to-day in the foreign concession and the native city. No lives are reported to have been lost among the foreign population.
April 12	
1878	<i>Turkey.</i> An earthquake caused considerable damage at Mondania, Sabandja, and in the environs of Broussa and Ismid.
April 19	
1878	<i>Bay of Biscay.</i> Continuous storms. "During the recent hurricane about 150 fishermen from the neighbourhood of Bilbao and Santander were drowned."— <i>Times Telegram</i> .
April 20	
1878	<i>Venezuela.</i> Terrific earthquake at Cua; 600 persons killed; severe shock also at Caracas.
May 14	
1878 }	
May 21 }	<i>Hong Kong.</i> Terrible thunderstorm, occasioning much damage.
1878	<i>United States.</i> A terrific tornado crossed a portion of Wisconsin, passing from the south-west to the north-east, and devastating a long strip of country, including the towns of Mineral Point, Mount Vernon, Primrose, Oregon, and Paoli, while the feeble effects of the same tornado were felt at Madison, also as far south as Chicago. In the direct path of the storm everything was demolished, and hundreds of buildings were destroyed. The <i>débris</i> was blown many miles. From reports thus far received it appears that 30 persons were killed and 50 injured. Several dead were carried to long distances by the whirlwind and then dashed to the ground. Those injured were generally in destroyed buildings. In one case a school house with the teacher and scholars were carried away several rods, three of the scholars being killed, but some escaping unhurt.
May 23	
1878	<i>Great Britain.</i> During this month most severe storms, accompanied with lightning, occurred in various parts of the kingdom. During the storm which passed over Perthshire on 28th and 29th, the monument which was erected by Mr. Crieff in 1832 in memory of Sir David Baird, the hero at the storming at Seringapatam, was almost entirely destroyed. The monument, which was a counter-part of Cleopatra's Needle, was 80 feet high, and cost 4,000 <i>l.</i> to erect. It was struck on the top; 20 feet of it was thrown to the ground, and the base was also injured by the electric fluid.
May	
1878	<i>Ireland.</i> Great storm in south of Ireland; much damage occasioned.
June 27	
1878	<i>England.</i> Very severe storms in various parts of the country, accompanied by lightning and torrents of rain. At Enfield (north of London) 3·07 inches of rain was recorded during a thunderstorm. Hailstorms in west of England.
June 30	

TABLE V.—*Comets, Cyclones, Earthquakes, Hailstorms, &c.—Contd.*

A.D.	
1878	<i>United States.</i> A tornado, accompanied by thunder, lightning, and hail, occurred at Pittsburg, Pennsylvania, inflicting great damage within a radius of 10 miles from that town. The lightning destroyed the Vesta Oilworks, consuming 80,000 barrels of petroleum. Torrents of rain at the same time swept down the hills into the Alleghany and Monongahela rivers. One house was quite swept away, and five persons were drowned. The tornado burst over a party picnicing at Rossgrove, seven miles from Pittsburg, uprooting five large trees, which fell upon a large number of people who had sought shelter beneath them, killing fourteen and injuring thirty.
1878	<i>Southern Austria.</i> Along the valley of the Save, there was a few days ago a very severe hailstorm, which has done a great deal of damage to the crops. The hailstones are reported to have been unusually large. The <i>Neue Freie Presse</i> describes them as being of such a size that they broke the tiles on the roofs and severely injured several persons.
1878	<i>Switzerland.</i> Great damage was done throughout Central and Eastern Switzerland by a series of severe thunderstorms. Many buildings were destroyed and set on fire by the lightning, rivers overflowed their banks, and the Berne-Lucerne Railway received injuries so serious that the traffic between those places has had to be temporarily suspended. At the same time a heavy hailstorm devastated the crops and vineyards in the neighbourhood of Montreux; and the hamlet of Thusinge, Canton Vaud, was almost destroyed by a fire.
1878	<i>England.</i> During all the latter part of the month continued storms, of great severity.
July 4	
July 9	
July 23	
July	

Note.—The literature relating mainly to this table is very extended, and forms a separate table itself—No. VII.

5. *Insects, Vermin, &c.*—As to *insects*, plagues of these appear to have afflicted mankind from a very early period. Thus we read in the eighth, ninth, and tenth chapters of the Book of Exodus, of the plagues of Egypt, supposed to have occurred in the year 1491 B.C. There was first the plague of *flies*, and then of *locusts*; “15. For “they covered the face of the whole earth, so that the land was “darkened; and they did eat every herb of the land, and all “the fruit of the trees which the hail had left: and there remained “not any green thing in the trees, or in the herbs of the field, through “all the land of Egypt.” We are told “14. . . . Before “them, there were no such locusts as they, neither after them “shall be such.” But there have been some very much like them, especially in the United States. I have endeavoured to construct a table of such visitations. It must be regarded as very incomplete.

As to *Vermin*, such as Rats, Mice, &c., destroying the crops, there are but few instances on record, and these are so scattered as to be by no means readily brought into tabular form. One or two instances will be found included in the following table:—

TABLE VI.—*Plagues of Insects and Vermin.*

B.C.	
1491	<i>Egypt.</i> The plagues of (<i>inter alia</i>) flies and locusts.
A.D.	
158	<i>Scotland.</i> Infinite swarms of insects eat up all the grain and cause famine.
475	<i>Northern Nations.</i> Great swarms of locusts.
476	<i>England.</i> "Greatest swarms eat up grass, all grain, and fruits; famine."—SHORT.
592	<i>England.</i> Locusts, with drought.
672	<i>Syria and Mesopotamia.</i> "Eaten up with them."
872	<i>England.</i> "A monstrous kind; hence famine and plague."—SHORT.
895-97	<i>Ireland.</i> Invasion of locusts, and famine.
1031	<i>England.</i> Locusts and floods; famine.
'90 or 91	<i>Constantinople.</i> Plague of insects.
'99	<i>England.</i> "Swarms of strange flies."—SHORT.
1101	<i>Bavaria.</i> Swarms of butterflies for three days, from Saxony.
'17	<i>Jerusalem.</i> A plague of insects. Short gives the date 1120: "Plague of mice and locusts."
'41	<i>England.</i> "Clouds of small flying worms [<i>? bugs</i>] darken the sun."—SHORT.
'47	<i>England.</i> "Swarms of butterflies sprinkled with blood."—SHORT.
'52	" Plague of flies and gnats.
'76	<i>Germany.</i> At Carinthia locusts eat up all; famine and plague.
1266	<i>Scotland.</i> "Was eat up by palmer-worms."
'86	<i>Prussia.</i> Infested with venomous worms.
1476	<i>England.</i> Many insects.
1575	" Plague of flies and beetles on the Avon. 24th February.
'81	" A plague of mice in Essex; but killed by owls.
'98	" "Swarms of flies, fleas, and gnats."—SHORT.
1611	(<i>?</i>) <i>Spain.</i> Insects and caterpillars, then flies, at Lusana (<i>?</i>) <i>Luisiana</i> , or (<i>?</i>) <i>Lausanne</i> (Switzerland).
'12	(<i>?</i>) <i>Austria.</i> At Strigonium [<i>? Striguo</i> , in the Tyrol]. Clouds of grasshoppers darkened the air.
'85	<i>France.</i> At Languedoc, strange devouring grasshoppers.
'87	<i>England.</i> Gnats, flies, and insects.
1791	<i>India.</i> At Kach (Bombay Presidency) swarms of black ants ate up the crops.
1802	<i>India.</i> At Kach swarms of locusts destroy crops.
'12-13	" Crops destroyed in parts of Sind by locusts; in other localities by a plague of rats; and again in other districts by locusts.
'33-35	<i>India.</i> In Madras Presidency swarms of locusts.
'55	<i>United States.</i> Great plague of locusts in Mormon settlements (Utah). Crops partially destroyed. Sea-gulls (never before or since seen in this locality) came in great numbers and devoured the locusts, thus preventing absolute famine. This was regarded as a piece of divine intervention. This was told to the writer by the Mormon elders in 1874.
'68	<i>United States.</i> Locusts appeared in the Red River Settlements.
'74	" The western plains were again ravaged by locusts. The writer passed through one of the districts so visited in the early autumn; the devastation was complete. In 1877 Mr. C. V. Riley, M.A., Ph.D., published in Chicago: "The Locust Plague in the United States: being more particularly a treatise on the Rocky Mountain Locust, or so-called Grasshopper, as it occurs east of the Rocky Mountains, with practical Recommendations for its Destruction." <i>Illustrated.</i>
'74-77	<i>United States.</i> The Colorado (potato) beetle committed great devastation of the crops in various parts of the United States. It has since shown itself in <i>Germany</i> and in Great Britain.
'78	<i>North China.</i> The famine now raging began in one district by a visitation of locusts.

TABLE VI.—*Plagues of Insects and Vermin—Contd.*

A.D.		
1878	Spain.	Locusts appeared (April) in fifty-three communes in the province of Badajoz.
'78	Algeria.	Dr. G. Hellmann, in the <i>Austrian Journal</i> , 1st April, discusses the importance of an independent telegraphic organisation for the requirements of the western parts of the Mediterranean seaboard. He shows how reports from the Azores would be of the first importance to the district in question. Among other uses of the proposed intelligence system Dr. Hellmann suggests the possibility of locust warnings! <i>The advance of these plagues over Algeria is at a regular rate, and it is quite possible to adopt precautionary measures for killing them if one knows they are approaching.—Academy.</i>
'78	Bosnia.	9th June. <i>Locusts have appeared on the south side of the Neretva river, devastating the scanty crops there, which were the only hope of a resource from threatening famine.</i>
June 9		
1878	India.	In the <i>Times</i> telegram, under date, Calcutta, 30th June, it is stated, "In Mysore locusts continue to cause damage." In the <i>Times of India</i> , at a later date, it was announced, "Locusts have appeared in great numbers in parts of the Madras Presidency." A later telegram, 25th July, says, "Considerable anxiety is felt by the Madras Government in consequence of the destruction caused by locusts. Request has accordingly been made to the Government of India for the immediate despatch to Madras of extra famine officers. Furloughs have been completely stopped in Bengal. The Madras Government has issued instructions to all collectors to take energetic and vigilant measures for the destruction of locusts, and, on the appearance in any district of young locusts, to hire gangs of men to be employed under the famine officers in exterminating them. It is suggested that deep trenches should be dug, and the young locusts driven into them and buried."

Literature of Meteorology as affecting Famines.

I have found it of the utmost value in dealing with historical questions, to review the special literature relating to the point or the period under consideration. It gives a much firmer grasp of any question to know what were the contemporary views upon it, what was the degree of attention drawn to it: for this latter the literature at any period within the last three centuries is a certain guide. I venture to think that it is of no less value in regard to statistical inquiries such as the present. In this belief I have compiled the following chronological table of the literature of storms, &c. It is supplemental to the preceding tables: it throws light upon them, which is occasionally of great value. That it occupies so much space, is simply due to the fact that I have endeavoured to make it complete; and yet I am well aware that a critical examination will reveal some omissions. It is the first time such a table has been attempted, so far as I am aware. Subsequent labourers in the same direction may take heart that something is left for them to do.

The direct literature of famines will be best reserved for the second part of the paper.

TABLE VII.—*Literature of Earthquakes, Comets, Storms, &c.*

B.C.		
850	.....	Among the works of Aristotle was one on inundations of the Nile. It was republished in Paris in 1493, under the title of "De Inundatione Nile." 4to.
A.D.		
1542	.....	Heyu Newes of an horryble Earthquake, which was in the Citie of Scarbaria, in this present yere of xlii, the xiii June; and also that a citie in Turkey is sonke. London. Printed by Richard Lant.
'66	.....	The great wonders that are chaunced in the Realme of Naples; with a great Misfortune happened at Rome, and in other places, by an Earthquake in the month of December last past. Translated out of the Frenche into Englishe by J. A. London. 16mo. Printed by Henry Denham.
'71	.....	A Declaration of such tempestuous and outrageous Flooddes as hath been in divers places of England, 1570. London. 8vo. This tract enumerates the loss and damage in the several counties, particularly in the Bishopric of Ely.—WARR.
'71	.....	A Goodly Gallery with a most pleasaunt Prospect into the Garden of Naturall Contemplation to beholde the Naturall Causes of all kind of Meteors, as well as fyery as ayery, as watry and earthly, of which sorte be blasing starres, shootinge starres, flames in the ayre, &c., thonder, lightnings, earthquakes, &c.; rayne, dew, snowe, cloudes, springes, &c.; stones, metalles, earthes. To the glory of God and the profit of his creatures. By William Fulke [or Fulco], a celebrated English divine. London.
'77	.....	Of all Blasing Starres in general, as well supernaturall as naturall; to what Country or People soever they appear. By Abraham Fleming. London.
'78	.....	A view of certain "Wonderful Effects" of late days come to passe, and now newly conferred with the presignification of the Comete, or Blasing Star which appeared in the south-west, upon the 10th day of November last past. Written by T. T. London, 1578. 4to. Printed by John Jones.
'80	.....	The booke of the Earthquake, to the Good Deane of Paules. By Thomas Churchyard, poet.
'80	.....	A Godly Admonition for the time present; wrote on occasion of the Earthquake on the 6th April, 1580. Printed by Reginalde Wolff. London. 4to.
'80	.....	Translation of Frederick Nauze, his generall Doctrine of Earthquakes. By Abraham Fleming. London. 8vo.
'80	.....	A Shorte and Pithie Discourse concerning the engendering Tokens and Effects of all Earthquakes in generall, particularly applyed to that 6th April, 1580. By Thomas Twyne, M.D. London. 4to.
'80	.....	A Bright Burning Beacon, forewarning all Wise Virgins to Trim there Lamps against the coming of the Bridgroom. Containing a General Doctrine of Sundry Signs and Wonders, especially Earthquakes. By Abraham Fleming. London. 12mo.
'80	.....	Three proper and Wittie familiar Letters, lately passed betuene two Vniuersitie men, touching the Earthquake in April last, and our English reformed versifying, with a preface of a well-wisher to them both. By Gabriel Harvey, "A Caustic Wit." London. 4to. Black Letter.
'80	.....	A Discourse on the Earthquake that happened in England and other places in 1580. By Arthur Golding. London. 8vo.
'80	.....	A Warning to the Wyse, a Feare to the Fond, a Bridle to the Lewde, and a Glaasse to the Good; written of the late Earthquake chanced in London and other places, the 6th of April, 1580, for the Glory of God and benefit of men, that warely can walke, and wisely can judge. Set forth in verse and prose, by Thomas Churchyard, gentleman. London. 8vo.

TABLE VII.—*Literature of Earthquakes, Comets, Storms, &c.—Contd.*

A.D.	
1580	The Order of Prayer and other Exercises to avert and turn God's Wrath from us, threatned by the late terrible Earthquake, &c.; with a prayer to be vsed of Householdiers euery Euening; a Godly Admonition; and a Report of the Earthquake, which happened on Easter Wedneseday, 6th April, 1580, somewhat before six of the Clock in the afternoon. 4to. London. Printed by Christopher Barker.
'86	Sorrowfull Song for Sinfull Soules; composed upon the stronge and wonderful shaking of the Earth, on 6 of Aprill, 1580. By John Carpenter. London. 8vo.
94	Versio et Annott ad Varios Auctores de Meteorologicis Affectionibus, seu de Causes et Signis Pluiarum, Ventorum, &c. By Sig. Fed. Urbinus Bonaventura. Venice. 4to.
'99	De Tiberis Inundatione et Epidemia Romana. By Marsilius Cagnatus, an Eminent Physican. Verona.
(?) 1600	A Contemplation of Mysteries; containing the rare effectes and significations of certayne Comets, and a briefe rehersall of sundrie Hystories, examples, as well Divine as Prophane, verie fruitfull to be read in this our age: with matter delectable both for the sayler and husbandman, yea and all traueylers by sea and lande, in knowing aforehand how dangerous tempests will succeed, by the sight of the cloud coming over the head; and other matters fruitfull to be reade. Gathered and Englished by Thomas Hyll. London. 8vo.
1607	God's Warning to His people of England, by the Great Overflowing of the Waters in Floudes, lately hapned in South Wales and many other places; wherein is described the great losses and wonderful damages that hapned thereby, by the Drowning of many Townes and Villages to the vtter vndooing of many thousandes of people. Printed at London for W. Barlay and Io. Bayly, and are to be solde in Gracious Street, 1607. 4to. Black letter. 12 pages.— <i>See Floods this date.</i>
'09	Discorso sopra l'Inondatione del Tevere. By Nic. Galli. Rome. 4to.
'24	Discorso sopra l'Inondatione dell Acque del Bolognese. By Sig. Alidosi. Bologna. 4to.
'37	Drinke and Welcome; or the Famous Historie of the most of Drinckes in use now in the Kingdoms of Great Brittain and Ireland; with an especiall Declaration of the Potency, Virtue and Operation of our English Ale; with a description of all sortes of Waters, from the Ocean See to the Tears of a Woman: as also the Causes of all Sorts of Weather, Faire or Foule, Sleete, Raine, Haile, Frost, Snow, Fogges, Mists, Vapours, Cloudes, Stormes, Windes, Thunder, and Lightning. Compiled first in the High Dutch tounge by the painefull and industrious Huldriche Van Speagle, and now most learnedly enlarged, amplified, and translated in English Prose and Verse, by John Taylor, "the Water Poet." London. 4to.
'38	True and Terrible Narration of an Earthquake in Calabria. By Martin Parker. London. 8vo.
'38	Dreadfull News, or, a True Relation of the Great Violent and late Earthquake which occurred on 27th March at Callabria, in Naples, to the overthrow of Eight Cities, Twenty-four Towns, and Fifty-four thousand Persons, &c. London. Small 4to.
'50	On Inundations. By Martin Schoochms, a learned Dutch writer. Date and place of publication uncertain.
'61	In Salusbury's Mathematical Collection, published this year (tome ii, p. 100), is included: A Relation of the State of the Inundations, &c., in the Territories of Bologna and Ferrara. By D. Corsini.
'65	De Cometis; or a Discourse on the Nature and Effects of Comets. By John Gadbury, "Astrological Imposture." London. 4to.

TABLE VII.—*Literature of Earthquakes, Comets, Storms, &c.—Contd.*

A.D.	
1665	<i>Geologica Norvegica</i> ; or, a brief Instructive Remembrancer, concerning that very great and spacious Earthquake, which happened almost quite through the south parts of Norway upon the 24th day of April, 1657. Translated by Dan. Collins. London. 12mo.
'66	Account of an Earthquake at Oxford in 1665. By Dr. John Wallis, F.R.S.— <i>Phil. Trans.</i> , 1666, abr. i, p. 59.
69	A Relation of the late Prodigious Earthquake and Eruption of Mount Etna. By Heneage Finch, Earl of Winchelsea. London. Folio.
'70	<i>Theatrum Cometicum</i> . By Stanislaus Zubrienietoki, an eminent Socinian divine. Amsterdam, 1666-68. Ludg. Bat., 1681. This is the most considerable of his works, and contains, among other things, the History of Comets from the Flood to 1665. "A work of great labour, containing a minute historical account of every comet that has been seen or recorded."—WATT.
'71	Concerning the Origin and Property of the Wind, with an historical account of Hurricanes, &c. By R. Bohun. Oxford, 1671 and 1693. 8vo.
'71	A relation of two considerable Hurricanes in Northamptonshire. John Templer of Braybrook.— <i>Phil. Trans.</i> , abr. i, p. 593.
'72	Concerning a strange Frost about Bristol.— <i>Phil. Trans.</i> , abr. ii, p. 37.
'75	To show that the Rain and Snow Waters are sufficient to make Fountains and Rivers run perpetually.— <i>Phil. Trans.</i> , abr. ii, p. 242.
'77	Letters, and Collections of Letters concerning Comets, &c. Robert Hooke, M.D., F.R.S. London. 4to. Also Discourses concerning Earthquakes. ? date.
'79	On a Storm, and some Lakes in Scotland. By Sir George Mackenzie, King's Advocate.— <i>Phil. Trans.</i> , abr. ii, p. 210.
'80	Account of the Signification of the Comet which hath been long visible in England. By William Knight. London. 4to.
'81	The Voice of the Stars. By William Knight. London. 12mo.
'82	A Judgement of the Comet which became first generally visible in Dublin, 13th December, 1680. By Edward Wettenhall, D.D., Bishop of Kenmore. London. 8vo.
'83	Account of an Earthquake at Oxford, September 17th, 1683.
'83	Three Papers upon Earthquakes. By Martin Lister, M.D.— <i>Phil. Trans.</i> , abr. iii, p. 16.
'83	On der sock over de Kometci; that is, An Inquiry concerning Comets, occasioned by the Comet which appeared in 1680 and 1681. By Balthazar Bekker. Leuward. 8vo. In this book, which was written in Low Dutch, he endeavoured to show that Comets are not the presages or forerunners of any evil.
'84	On the Effects of the great Frost of 1683 on Trees and other plants.— <i>Phil. Trans.</i> , abr. iii, p. 89.
'84	Effects of the Great Frost on Trees and other plants.
'86	Concerning a Discovery made by the Inundations of the Tevere. By Sig. Sarotti.— <i>Phil. Trans.</i> , abr. iii, 340.
'87	<i>Tractatus De Cometis: Cometæ Anni 1680, et plurium præcedentium ab Anno 843, et sequentium Uttriusque Testamenti et posterioribus Prophetiis cum Apocalypsi convenientibus. Concordatum in Remedium omnium Ecclesiæ Rom. adversitatum</i> . Collectore, M. A. Malonoxio Vedasto-Novavillano Næso-comii D. V. Tornaci Pastore indigno. Leodii, Typis Gerardi Grison, in Antiquo Foro.
'92	A Summary of the Causes of the Alterations which have happened to the Face of the Earth. By John Ray, F.R.S., Naturalist.
'93	Practical Reflections on the late Earthquakes in Jamaica, England, Sicily, Malta, &c. By John Shower, Minister of the Gospel. London. 8vo.

TABLE VII.—*Literature of Earthquakes, Comets, Storms, &c.—Contd.*

A.D.	
1693	A Discourse of Earthquakes. By Robert Fleming, a Scotch Divine. London.
'93	Account of the Earthquake in Sicily. By Martin Hartop.— <i>Phil. Trans.</i> , abr. iii, 555. Author's account of the same. <i>Ibid.</i> , 556.
'93	Account of the Earthquakes in Sicily on the 9th and 11th January, 1692-93. Translated from an Italian Letter.— <i>Phil. Trans.</i> , abr. iii, 602. By Vincentus Bonajutus.
'94	Earthquakes Explained and Practically Improved. Occasioned by the late Earthquake on September 8th, 1692, in London and many other parts of England, and beyond Sea. By Thomas Doolittle, M.A. "Jamaica's miseries show London's mercies. Both compared." London: printed for John Salusbury, at the Rising Sun, over against the Royal Exchange, in Cornhill, 1693.
'94	On a Whirlwind.— <i>Phil. Trans.</i> , abr. iii, p. 660.
'94	The General History of Earthquakes. By Richard Browne. London, 8vo. Sold by Nathaniel Crouch, Bookseller.
'94	A Methodical Account of Earthquakes. By Leonard Christ. Sturmius, Professor of Physics and Mathematics, Altorf.
'94	Account of the Earthquakes in Peru in 1687 and in Jamaica, 1687 and 1692. By Sir Hans Sloane.— <i>Phil. Trans.</i> , abr. iii, p. 624.
'95	Account of a Volcanic Eruption in the Isle of Soree in 1693.— <i>Phil. Trans.</i> , 1695, abr. iv, p. 13. By Nicholas Witzsen.
'95	Further Account of the Horrible Burning of some Mountains of the Molucca Islands. <i>Ibid.</i> , p. 168. By the same.
'95	Course of some Rivers about Tungarouse destroyed by an Earthquake. By Nicholas Witzsen, Burgomaster of Amsterdam.— <i>Phil. Trans.</i> , 1695, abr. iv, p. 502.
'95	On the Production and Effects of Hail, Thunder, and Lightning. By Dr. John Wallis, F.R.S.— <i>Phil. Trans.</i> , abr. iv, 196, 212, and 226.
'95	An Essay towards a Natural History of the Earth and Terrestrial Bodies, especially in Minerals; as also of the Sea, Rivers, and Springs; with an Account of the Universal Deluge, and of the effects that it had upon the Earth. By John Woodward, M.D. 1695, 1702, 1723. 8vo.
	Also a Treatise: Earthquakes caused by some Accidental Obstruction of a continual Subterranean Head.
'96	An Extraordinary Hail. By Edmund Halley, F.R.S.— <i>Phil. Trans.</i> , abr. iv, 171, 172.
'97	A Note concerning an Extraordinary Hail in Monmouthshire. By Edward Lhwyd, Antiquary.— <i>Phil. Trans.</i> , abr. iv, 173.
'97	Account of the Great Hailstorm in Hertfordshire. By Robert Taylor. <i>Phil. Trans.</i> , abr. iv, 172.
'97	Effects of a Violent Storm on the Rivers of North America. Mr. Scarbrough.— <i>Phil. Trans.</i> , abr. iv, 198.
'97	A prognostication concerning the Frost. By M. Cassini, the French King's Astrologer, translated from the French. London. 4to. M. Geo. Domen. Cassini was the famous French Astronomer.
'98	Concerning an Extraordinary Inundation of the Island of Mauritius. By Nicholas Witzsen.— <i>Phil. Trans.</i>
'99	Account of what Rain fell in the years 1697-98; with some Observations on the Weather. By Richard Townley.— <i>Phil. Trans.</i> , abr. iv, 350.
1708	The Storm; or a collection of the most remarkable casualties which happened in the Tempest. Daniel de Foe.
'08	On the storm; a Sermon on Psalm xlviii, 8. By Reverend John Cockburn, D.D., Rector of Northaw, Middlesex.
'08	Observations on the late Great Storm. By Wm. Derham, D.D., Canon of Windsor.— <i>Phil. Trans.</i> , abr. iv, 93.
'08	Observations on the Weather for several years. By the same. <i>Ibid.</i> , 60.

TABLE VII.—*Literature of Earthquakes, Comets, Storms, &c.—Contd.*

A.D.	
1708	Account of the Weather for 1699. <i>Phil. Trans.</i> , abr. iv, 483.
'04	Poem on the late Storm. John Crabb. London, folio.
'04	A strange effect of the late Storm in Sussex. By John Fuller, Esq., — <i>Phil. Trans.</i> , abr. v, 91.
'04	A Fast Sermon on the Great Storm, on Psalm lxxxix, 32. By Rev. John Griffith, Edensor, Derbyshire.
'04	Fast for the Storm; on Joel ii, 12—13. By John Hoadby, Arch- bishop of Armagh. Norwich. 4to.
'04	Sermon on the Great Storm, on John iii, 8. By Joseph Hussey, Pastor of Cambridge. 4to.
'04	Fast for the late Storm; on Psalm cxix, 120. Rev. Thos. Ley, M.A. Vicar of Crechton, Devon. 4to.
'04	Sermon on the late Storm; on Isaiah xxvi, 9. By Rev. Thos. Manning, Bishop of Chichester.
'04	Discourse on the late Storm; on Rev. xvi, 9. By Rev. Symon Patrick, afterwards Bishop of Ely. 12mo.
'04	A Fast Sermon for a Storm; on Hosea viii, 7. By Benjn. Grosvenor, D.D., Dissenting Divine.
'04	A Fast Sermon for Storm; on Isaiah xxix, 6. By Rev. W. Harris, D.D.
'04	Experiments to show the cause of the descent of mercury in the barometer in a storm. By Francis Hauksbee, F.R.S.— <i>Phil. Trans.</i> , abr. v, 147.
'04	Account of an Earthquake in the North of England. By Ralph Thoresby, F.R.S.— <i>Phil. Trans.</i> , abr. iv, p. 104.
'04	Raconto Istoricò de Terremotti sentite in Roma, e in parte delle Stato Ecclesiastico e in altri luoghi la sera de' 14 di Gennajo, e la mattina de' 2 di febbrajo dell' anno 1753. By Lue Antonio Ohracas. Rome, 1704. 4to.
'06	An Account of a Storm of Rain that fell at Denbigh in Wales.— <i>Phil.</i> <i>Trans.</i> , abr. v, p. 331.
'08	Concerning the effects of a Storm of Thunder and Lightning at Colchester. By Jos. Nelson.— <i>Phil. Trans.</i> , abr. v, 432.
'08	<i>Miscellaneous Reflections occasion'd by the Comet which appear'd in December, 1680, chiefly tending to explode Popular Superstitions. Written to a Doctor of the Sorbon[ne] by Mr. Bayle. Translated from the French. To which is added the Author's Life. In 2 vols. London: printed for J. Morphen, near Stationers' Hall. MDCCVIII.</i> In the Table of Contents of these volumes occur (<i>inter alia</i>) the fol- lowing sections:—9. "First reason against the presages of Comets, that 'tis very probable that they have no virtue to produce anything upon earth." 14. "That the exhalations of the comets, even allow- ing they might reach as far as the earth, could produce no effect there." 16. "That if comets had the power of producing anything at all upon earth, they might as well produce good as evil." 17. "That Astrology, which is the foundation of particular predictions from the Comets, is most ridiculous." 23. "That should it be granted that Comets are always succeeded by signal Calamity's, yet we cou'd not therefore infer that they have been either the signs or the causes of these Calamities." 24. "'Tis false that more Evils have happen'd in the years next succeeding Comets than in other years." 29. "What are we to say in answer to those who bring examples to prove the presages of Comets." 35. "The year which succeeded the Comets of 1665, compar'd with the years preceding the Comet of 1652." 45. "That the general persuasion is of no weight to prove the Evil Influence of Comets." 50. "The super- stition of the Antients as to Eclipses." 56. "What has been said of Eclipses apply'd to Comets." 57. "If Comets were the presages of Calamity's, God must have wrought Miracles for this Confirma- tion of Idolatry." 60. "A strange consequence which must follow

TABLE VII.—*Literature of Earthquakes, Comets, Storms, &c.—Contd.*

A.D.	<i>Miscellaneous Reflections—Contd.</i>
1708	<p>from Comets being miraculously produced." 72. "That the reasons why Comets cou'd not be the presages of Evil before the Coming of Jesus Christ subsist still." 74. "That Comets have particular characters upon 'em, which show they are not presages." 76. "'Tis false that people who are happy after the appearance of Comets, have merited this distinction by their repentance." 79. "That the common opinion of Comets being the presages of Evil is an old Pagan Superstition, introduc'd and entertain'd among Christians by their prejudice for antiquity." 84. "How Christians came to be under the same prejudice as the Heathens with regard to Comets." 95. "That when they make Comets the presages of the Death of Kings, they ne'er distinguish the Deaths which are prejudiced from those which are otherwise." 102. "First objection against the argument from Religion: God has form'd Comets, that the Pagans might acknowledge a Providence, and not fall into atheism." 194. "That there's no example proving God has miraculously form'd prodigy's for the pretended conversion of any one to idolatry." 203. "Comets are produc'd without a miracle. God might work miracles among Infidels. God design'd to make himself known by the means of Comets. All acts of idolatry occasioned by Comets will render man more inexcusable." 204. "If Comets were signs of what happens after their appearance, 'tis necessary they shou'd be miraculously form'd." 205. "A list of several hypotheses which may be follow'd in reasoning on Comets." 206. "That neither of these hypotheses discovers any natural connection between the Comets and what happens upon Earth after their appearance." 215. "A way of conceiving Comets to be presages without being miracles." 217. "That if Comets were miracles, they'd be of such a kind as God never vouchsafes to Infidels." 220. "The sight of a Comet renders us not more capable of knowing the nature of God." 220. "'Tis false that the true Gentiles were render'd inexcusable in not being converted to the true God by the sight of Comets." 229. "That 'tis impossible Comets shou'd be the efficient cause of the Calamity's they are supposed to presage." 233. "That the characters of true miracles belong not to Comets." 237. "That Comets have no part in exciting the passions which cause the diversity of events." 239. "Remarks showing that to make a judgment of what shall happen after the appearance of Comets, there's no need of considering these Stars, and that 'tis sufficient to have an eye to the situation of general affairs to the Inclinations and Interests of Princes. An Essay of this method on the Comet of 1618, and that of 1681."</p>
	<p>[It is curious to be obliged to remember that the author of this Treatise was and is regarded as one of the greatest philosophers France has produced!]</p>
'09	Winter Meditations on Frost and Snow; on Psalm cxlvii, 15—18. A sermon. By John Shower.
'09	On the Great Frost of the Winter of 1709. By. Wm. Derham, D.D., F.R.S.— <i>Phil. Trans.</i> , abr. v, 553.
'09	Comparison of the Weather and Rain at Zurich and Upminster (in Essex). By the same. <i>Ibid.</i> , 497.
'09	An Account of some Inundations, Monstrous Births, Appearances in the Heavens, &c. By Peter le Neve, F.R.S.— <i>Phil. Trans.</i> , abr. v, 485.
'14	Thanksgiving Sermons after the Storm; on John v, 14. By Rev. Elisha Smith, M.A. Lectures of Wishbeach.
'14	Account of the Rain which falls every year at Upminster, Essex, for eighteen years. William Derham, D.D., F.R.S.— <i>Phil. Trans.</i> , abr. vi, 46.
'14	Sermon on a Storm; on Nahum i, 3. By Rev. Gerard Degols, Rector of St. Peter's, Sandwich, Kent. 8vo.

TABLE VII.—*Literature of Earthquakes, Comets, Storms, &c.—Contd.*

A.D.	
1715	Meteorological Essays, concerning the Origin of Springs, Generation of Rain, and Production of Wind, with an account of the Tide. Edward Barlow. London. 8vo.
'18	Account of a Fiery Meteor, seen in Jamaica to strike the Earth. On the weather, Earthquakes, &c., of that Island. By Henry Barham. <i>Phil. Trans.</i> , abr. vi, p. 368.
'22	On a violent Shower of Rain in Yorkshire. By Ralph Thoresby, F.R.S. <i>Phil. Trans.</i> , abr. vi, 585.
'24	Observations on a Comet, made at Witham in Essex. By the Hon. Lord Paisley.— <i>Phil. Trans.</i> , vii, 15.
'25	Dissertation sur les Tremblemens de Terre, et les Epidémies qu'ils occasionnent. By M. Charles Bagard, eminent French physician.
'25	Curious and Uncommon Account of the Great Eclipse of the Moon, 10th October, 1725, with a new Theory of all the Orbs in the Heavens; also the Poetical Adventures and Translations of five months and odd days at the Rural Seat of Mons. de l'Avon. 8vo. <i>plates</i> .
'27	At an Earthquake at Dartmouth in Kent. By Edmund Barrell.— <i>Phil. Trans.</i> , abr. vii, p. 176.
'29	Account of an Earthquake at Boston, New England. By Rev. Benjamin Coleman.— <i>Phil. Trans.</i> , abr. vii, p. 348.
'30	Account of the Hurricane, May 20, 1729. Richard Bugden. London. 8vo.
? '30	A Physico-chymical Explanation of Subterranean Fires, Earthquakes, &c. By M. Lemery of the Academy of Sciences, Paris. ? date.
'32	A vindication of the Testimony of Phlegon, or an account of the Great Darkness and Earthquake at our Saviour's Passion described by Phlegon, in answer to a Dissertation of Dr. Sykes upon that Eclipse and Earthquake. By William Whiston, an English divine.
'34	Account of some Remarkable Frosts. William Derham, D.D., F.R.S.— <i>Phil. Trans.</i> , abr. vii, 448.
'34	The General History of Earthquakes; being an account of the most Remarkable and Tremendous Earthquakes that have happened in divers parts of the World, from the creation to this Time; as they are recorded by Sacred and Common Authors; and particularly those lately in <i>Naples, Smyrna, Jamaica, and Sicily</i> . With a description of the famous burning Mount, <i>Etna</i> , in that Island; and the relations of the several dreadful Conflagrations and Fiery Irruptions thereof for many ages. Likewise the Natural and Material Causes of Earthquakes, and the usual signs and prognosticks of their approach; and the Consequences and Effects that have followed several of them. By R. B. [urton]. London. Printed for A. Battersworth, in Paternoster Row, and J. Hodges, on London Bridge. MDCCLXXXIV.
'35	On a Storm; a Sermon on John iii, 8. By Andrew Gifford, D.D., F.S.A. 8vo.
'35	Account of several Earthquakes that have happened in New England. By Paul Dudley, F.R.S.— <i>Phil. Trans.</i> , abr. viii, p. 22.
'36	Account of the Earthquake at Havan in Sussex. By Dr. Edward Bayly.— <i>Phil. Trans.</i> , abr. viii, 96.
'36	General History of Earthquakes. Burton.
'36	Account of the Shock of an Earthquake fell in Sussex, 25th October, 1734. By Rev. Joseph Wasse.— <i>Phil. Trans.</i> , abr. viii, 96.
'36	On the same subject. <i>Ibid.</i> , p. 98.
'37	The Astronomical Year, or an account of the many remarkable Celestial Phenomena of the great year 1736; particularly of the Comet, which was foretold by Sir Isaac Newton, and came accordingly. By Wm. Whiston, an English Divine. London, 8vo.
40	Some Considerations of the causes of Earthquakes. By Stephen Hales, D.D., F.R.S. London. 8vo.

TABLE VII.—*Literature of Earthquakes, Comets, Storms, &c.—Contd.*

A.D.	
1740	Concerning an Earthquake at Naples. By Hon. Henry Temple. <i>Phil. Trans.</i> , abr. viii, p. 401.
'40	Of the Volcanoes and Earthquakes in Peru. By M. Peter Bouguer of the Royal Academy of Sciences, Paris.
'41	An Earthquake at Scarborough, 29th December, 1737. By Maurice Johnson.— <i>Phil. Trans.</i> , abr. viii, 514.
'43	A Journal of the Shocks of Earthquakes felt near Newburg, in New England, from the year 1727 to the year 1741. By Rev. Matthias Plant.— <i>Phil. Trans.</i> , abr. viii, p. 552.
'44	The Natural History of Volcanoes and Earthquakes. By M. Buffon, of the Royal Academy of Sciences, Paris. Also Theory of the Earth. 1744.
'48	On the Weather in South Carolina, &c. By John Lining, M.D.— <i>Phil. Trans.</i> , abr. ix, 514.
'48	Particular Relation of the Dreadful Earthquake which happened at Lima and at the Neighbouring port of Calloa, on the 28th October, 1746, to which is added a description of Calloa and Lima, before their destruction; and of the kingdom of Peru in general, with all its inhabitants. London. 8vo.
'49	A surprising inundation in the valley of St. John's, near Keswick, in Cumberland, 22nd August, 1749. By John Look, F.R.S.— <i>Phil. Trans.</i> , abr. x, 18.
'49	Sermon on the Earthquake, from Job. ix, 5, 6. By Samuel Chandler, D.D. London. 8vo.
'49	The Natural and Moral Government and Agency of God in causing Droughts and Rains; on Psalm cvii, 33—35. A Sermon by Thomas Prince, M.A., Pastor of South Church, Boston, New England. 8vo.
'50	On the occasion of a second shock of an Earthquake; a Sermon on Matt. xi, 23, 24. By Rev. Philip Doddridge. 8vo.
'50	On the Earthquakes, on Amos iv, 12. By Rev. John Mason, M.A. 8vo.
'50	List of Earthquakes felt in England and other Countries, with their dates, &c. By Cromwell Mortimer, M.D., Secretary of Royal Society.— <i>Phil. Trans.</i> , abr. x, p. 108.
'50	On the Hot Weather in July, 1750. By William Arderon, F.R.S.— <i>Phil. Trans.</i> , abr. x, 94.
'50	Letter to the Clergy and People of Westminster, on occasion of the late Earthquakes. By Thomas Sherlock, D.D. London. 4to.
'50	Some thoughts occasioned by the late Earthquakes. By Benjamin Stillingfleet, Naturalist. London. 4to.
'50	The Philosophy of Earthquakes, Natural and Religious. By Wm. Stukley, M.D., F.R.S. London. 8vo.
'50	A Dissertation on Earthquakes. Roberts.
'50	Juliana; or, a Discourse concerning the Earthquakes and Fiery Eruptions which defeated the Emperor's attempt to Rebuild the Temple at Jerusalem. By Wm. Warburton, Bishop of Gloucester. London. 8vo.
'50	A Genuine Account of Earthquakes, especially that of Oxford in the year 1695 [corrected in ink to 1683], and of another terrible one at Port-Royal, in Jamaica, in the year 1692, giving an account of the Nature and Cause of them, their dire Effects, and destructive Faculties; their Desolation and Depopulation: published for the Information and Instruction of the public in general, and collected from the best authors, and personal witnesses to the several fatal Occurrences. London. Printed for Henry Slater, at the Golden-key, the corner of Clare Court, in Drury-Lane. MDCCCL.
51	Account of an Earthquake at Constantinople. By Murdoch Mackenzie, M.D.— <i>Phil. Trans.</i> , abr. x, 548.
'51	A Poem in Blank Verse, on a Violent Storm, attended with Thunder and Lightning; to which is added a Poem on Death, &c. Palmera. By Edward Stevens. London. 8vo. 2s. 6d.

TABLE VII.—*Literature of Earthquakes, Comets, Storms, &c.—Contd.*

A.D.	
1751	On the quantity of Rain which fell at Leyden in the year 1751. By Wm. Van Hazen.— <i>Phil. Trans.</i> , abr. x, 233.
'53	Of a Storm of Thunder and Lightning in Cornwall. By Wm. Borlase, LL.D., F.R.S.— <i>Phil. Trans.</i> On the quantity of Rain which fell at Charlestown in South Carolina, from January, 1738, till December, 1752. By John Lining, M.D.— <i>Phil. Trans.</i> , abr. x, 400.
'54	Observations on the late severe cold weather. By Wm. Orderon, F.R.S.— <i>Phil. Trans.</i> , abr. x, 454.
'54	Of an Earthquake felt at York. By David Erskine Baker.— <i>Phil. Trans.</i> , abr. ix, 597.
'55	Of the Earthquake at Cadiz in 1755. By Benjamin Bewick.— <i>Phil. Trans.</i> , abr. x, 662.
'55	An Account of the Earthquakes which happened in Barbary, &c. Lord Viscount Royston, F.R.S.— <i>Phil. Trans.</i> , abr. x, 663.
'55	Agitation of the Waters in Cornwall. By Wm. Borlase, LL.D., F.R.S.— <i>Phil. Trans.</i> , abr. x, 653.
'55	Of the Earthquakes felt at Brussels. By Sir John Pringle, Bart., M.D.— <i>Phil. Trans.</i> , abr. x, p. 696.
'55	On the agitation of the Waters, 1st November, 1755, in Scotland and at Hamburgh. By the same.— <i>Ibid.</i> , p. 697.
'55	Serious Thoughts on the late Earthquake, &c. A Letter from a Portuguese Officer to a Friend in Paris, giving an account of the late Dreadful Earthquake, by which the City of Lisbon was destroyed. Translated from the Portuguese. London. Cooper.
'55	Account of an Earthquake felt at Glasgow and Dumbarton; also of a shower of Dust falling on a Ship between Shetland and Iceland. By Robert Whytt, M.D., F.R.S.— <i>Phil. Trans.</i> , abr. x, p. 687.
'55	An Account of an Earthquake felt in the Lead Mines in Derbyshire, 1st Nov., 1755. By Rev. Wm. Bullock.— <i>Phil. Trans.</i> , abr. x, p. 656.
'55	Similar Accounts from various parts of the Island, by different hands.— <i>Ibid.</i>
'55	Of the late Earthquakes. By Mons. Vernede, Pastor of the Wallon Church, at Maastricht.— <i>Phil. Trans.</i> , abr. xi, 8.
'55	Account of the Earthquake at Madeira. By Charles Chambers.— <i>Phil. Trans.</i> , abr. x, 665.
'55	Earthquake in Philadelphia. By Peter Collinson, F.R.S.— <i>Phil. Trans.</i> , abr. x, p. 667.
'55	A Philosophical Discourse upon Earthquakes, their causes and consequences, &c. London. Cooper.
'55	Of an impression on a stone dug up in the Island of Antigua, and the Quantity of Rain fallen there for four years. By Rev. Francis Byam.— <i>Phil. Trans.</i> , abr. x, 628.
'56	Of the Earthquake felt 18th February, 1756, along the Coast of England between Margate and Dover. By Samuel Warren.— <i>Phil. Trans.</i> , abr. x, 703.
'56	Earthquake in Geneva. By Charles Bownell, F.R.S.— <i>Phil. Trans.</i> , abr. x, 687.
'56	A Further Account of Memorable Earthquakes to the present year 1756; wherein is inserted a short and faithful relation of the late dreadful calamity at Lisbon; together with an abstract of Father Goree's Narrative of the Rise of a New Island in the Bay of Santorini in the Archipelago, in the year 1707. Being a continuation of a Tract entitled "A Chronological and Historical account of the most memorable Earthquakes which have happened in the world from the beginning of the Christian period to the year 1750." To which is added, by way of appendix, "A particular Account upon <i>Auto-de-Fe</i> , or act of Faith, at Lisbon. Taken from an author of good credit, who was himself an eye-witness thereof. By a Gentleman of the University of Cambridge."

TABLE VII.—*Literature of Earthquakes, Comets, Storms, &c.—Contd.*

A.D.	
1756	On the Fast on account of the Earthquake at Lisbon ; on Luke xiii, 2, 4, 5. Rev. Thos. Alcock, M.A. Oxon. 8vo.
'56	A Sermon on the Earthquake ; Genesis xix, 14. Rev. John Allen. 8vo.
'56	Two Sermons on the Doctrine of the Divine Visitation by Earthquakes ; on Isaiah xxix, 6. By Rev. Wm. Dodwell. Oxford.
'56	On the Earthquake at Lisbon ; on Ezekiel xxvi, 17, 18. Charles Bulkley, Dissenting Minister.
'56	On Earthquakes ; a Fast Sermon, on Psalm xviii, 7. By Wm. Stukley, M.D., F.R.S. 8vo.
'56	A Fast Sermon on the Earthquake ; Luke xiii, 4, 5. Rev. Thomas Anguish, M.A., Deptford, 8vo.
'56	Fast Sermon for Earthquake, on Luke xii, 4, 5. Rev. Wm. Bearcroft, M.A., Chaplain to the Lord Mayor.
'56	Fast Sermon on the Earthquake, on Luke xiii, 5. 8vo.
'56	On the late Earthquake, &c. : a Sermon on Jeremiah xviii, 7, 8. By a Rev. Divine. 4to.
'56	Fast for Earthquake, on Ecclesiastes xxxvi, 26. Rev. Wm. Totten, Hexham.
'56	Fast for Earthquake, on 1 Peter, v. 6. By the same.
'56	Fast Sermon, occasioned by the Earthquake at Lisbon ; on Hebrews xi, 7. Rev. Job. Orton, Eminent Dissenting Minister.
'56	Serious call to Repentance : a Fast Sermon on the Earthquake, in Romans xi, 22. Rev. John Pennington, M.A., Prebendary of Lincoln.
'56	Fast Sermon on the Earthquake ; on Jeremiah xvii, 6—8. Rev. Gloucester Ridley, D.D., Canon of Salisbury.
'56	Earthquake, Fast Sermon : Psalm cxxvii, 2. Rev. Arnold King, LL.B. Chaplain to the Lord Mayor. 4to.
'56	Earthquake ; a Fast Sermon, on Psalm xli, 8. Rev. Geo. Lavington, Bishop of Exeter.
'56	Prayers for a time of Earthquakes and Violent floods. Rev. James Meyrick, M.A. English Divine and Poet.
'56	A Fast for Earthquake, on Jeremiah xviii, 7. By James Hallifax, D.D., F.R.S. 4to.
'56	Fast Sermon, on the Earthquake, on Luke xiii, 2, 3. By Rev. James How, M.A. 8vo.
'56	Earthquake : a Fast Sermon, on Isaiah xxvi, 20. Rev. J. Kidgell, A.M., Rector of Horne, Surrey. 8vo.
'56	Earthquake : a Fast Sermon, on Matthew x, 29. Rev. James Kilner, M.A., Rector of Leydon, Essex. 4to.
'56	The Theory and History of Earthquakes, containing, I. A rational Account of their causes and effects ; illustrated by experiments and observations on subterraneous vapours, and the manner of making artificial Earthquakes. II. A particular and authentic History of those which have happened in these kingdoms, and the more remarkable of those abroad, viz., in <i>Sicily, Jamaica</i> , and <i>Lima</i> , with the most considerable eruption of <i>Vesuvius</i> and <i>Etna</i> . III. Some seasonable reflections on the two late Earthquakes, with a pathetic address on that occasion to the Inhabitants of <i>London</i> and <i>Westminster</i> . Humbly inscribed to the Right Rev. Thomas Lord Bishop of <i>Canterbury</i> . A pamphlet, pp. 62, with one leaf appendix.
'56	Plain account of the causes of Earthquakes ; being a supplement to the Treatise on Fire. By John Ficke, F.R.S. London. 8vo.
'56	The General Theory and Phenomena of Earthquakes and Vulcanoes, &c. ; to which is added a particular history of the Lisbon Earthquake. By an ingenious gentleman who was an eye-witness of that tremendous calamity. London. Owen.
'56	A plain account of the cause of Earthquakes ; being a supplement to a Treatise lately published on Fire. By the same author. London. 8vo.

TABLE VII.—*Literature of Earthquakes, Comets, Storms, &c.—Contd.*

A.D.	
1756	The late Dreadful Earthquakes no proof of God's particular wrath against the Portuguese; a Fast Sermon on Luke xiii, 4, 5. Rev. Thomas Seward, Canon of Litchfield. London. 8vo.
'56	A Satirical Review of the Manifold Falsehoods and Absurdities hitherto published concerning the Earthquake; to which is annexed an authentic Account of the late catastrophe at Lisbon, and the present state of that august Capital. By a Man of Business. London. 8vo.
'56	Of an Earthquake felt at Cologne, Liege, Maestricht, &c., on 19 November, 1756. By Abraham Trembley, F.R.S.— <i>Phil. Trans.</i> , abr. xi, 56.
'56	On Earthquakes, Polypes, Fossils, &c. By the same, <i>Ibid.</i> , 83.
'56	The Christian's Duty and Confidence in times of Public Calamity; being four Discourses occasioned by the late Dreadful Earthquakes, and the apprehensions of a French War. Rev. Benjamin Wallis, A.M., Minister of the Gospel in London.
'56	Thoughts on the Earthquake which was felt on the 9th December, 1755, in Switzerland. By John George Zimmerman. 4to.
'57	A Treatise on Places and Preferments, especially Church Preferments, with a Letter concerning the causes of Earthquakes. By Rev. William Webster, D.D. London. 8vo.
'57	Of the Earthquake felt in New England and the neighbouring parts of America, November 18, 1755. Prof. John Winthrop, Cambridge, Mass.— <i>Phil. Trans.</i> , abr. viii, 713.
'57	The History and Philosophy of Earthquakes, from the remotest to the present time, collected from the best writers on the subject; with a particular account of the Phenomena of the great one of November the 1st, 1755, in various parts of the globe. By a member of the Royal Academy of Berlin. London. Nourse. 8vo. 5s.
'57	Chronological Account of Earthquakes. By Rev. Zachary Grey. 8vo.
'57	An Account of the remarkable Comet whose appearance is expected at the end of this present year 1757, or at the beginning of 1758, &c. The whole illustrated with reflections on the General Conflagration, &c. London. 8vo. 1s.
'57	A Discourse on Comets; containing a brief description of the true system of the world, and an enumeration of all the discoveries which have been made yet concerning these temporary appearances. By John Todge Cowly, F.R.S., Mathematician. 8vo. 1s.
'57	The Theory of Comets, illustrated, in four parts: 1. An Essay on the Natural History and Philosophy of Comets, being the substance of all that has hitherto been published on the subject; 2. Tables containing the elements of the Theory of a Comet's motion; 3. The method of constructing the Orbit of any Comet, and computing its place therein; the method of Delineating the visible path of a Comet in the Heavens, on the surface of a celestial globe. The whole adapted to and exemplified in the orbit of the Comet of the year 1682, whose return is now at hand. By Benjamin Martin, Optician and Mathematician. London. 4to. 2s. 6d.
'57	Dissertatio de Frigore quatenus Morborum causa. By William Butter, M.D. Edinburgh. 8vo.
'58	Of an Earthquake felt at Lingfield, Surrey. By Sir James Burrow, F.R.S.— <i>Phil. Trans.</i> , abr. xi, 235.
'58	Observations on a slight Earthquake, though very particular, which may lead to the cause of great and violent ones, that ravage whole countries and overturn cities. By Sieur de Peyssonnel, M.D.— <i>Phil. Trans.</i> , abr. xi, 245.
'59	On a Storm of Thunder and Lightning at Norwich. By Samuel Cooper.— <i>Phil. Trans.</i> , abr. xi, 327.

TABLE VII.—*Literature of Earthquakes, Comets, Storms, &c.—Contd.*

A.D.	
1759	An Explication of the causes of Earthquakes. By Edward Wortley Montague.
'59	Accounts of the Fiery Meteor which appeared on November 6th, 1768, between 8 and 9 at night. By Sir John Pringle, Bart., M.D.— <i>Phil. Trans.</i>
'59	Oratio de Generatione Metallorum, &c. ; or, a Treatise on the Generation of Metals by Earthquakes. By Zomonofof, a celebrated Russian Poet.
'60	Of the late Earthquakes in Syria. By Dr. Patrick Russell, M.D., F.R.S.— <i>Phil. Trans.</i> , xi, 437.
'60	Observations on the Comet seen in January, 1760. By John Michel, B.D., F.R.S.— <i>Phil. Trans.</i> , abr. xi, 428.
'60	Conjectures concerning the Cause and Observations on the Phenomena of Earthquakes, particularly on the Earthquake at Lisbon, November 1st, 1755. By the same. <i>Ibid.</i> , 447.
'61	Of a Meteor seen in New England, and of a Whirlwind felt in that Country. By Prof. John Winthrop.— <i>Phil. Trans.</i> , abr. xi, 514.
'61	Description of the Comet which appeared in 1744. By Zomonofof, the Russian Poet.
'61	On the Phenomena of the Air, occasioned by the Electrical Fire, with a Latin Translation of the same. By the same.
'61	On the Origin of Metals by means of Earthquakes. By the same.
'61	The two Hydraulic Performances relative to the Preservation of the Provinces of Ferrara and Ravenna from the Inundation of Rivers. By Paul Frisi, Philosopher and Mathematician. Lucca, 1762.
'63	Of an Earthquake at Chattigaon. By Edward Gulston.— <i>Phil. Trans.</i> , abr. xii, 12, 13.
'63	Of the Earthquake in Siberia. By Weymaru.— <i>Phil. Trans.</i> , abr. xii, 3.
'63	On the Rain fallen in a Square Foot at Norwich. By Rev. Wm. Arderon, F.R.S.— <i>Phil. Trans.</i> , abr. xi, 678.
'64	A Description of a Storm that happened in the month of August, 1763. By Rev. John Hodges, Vicar of Tudily and Capella, Kent. London. 4to.
'64	Theory of Lightning and Thunderstorms. By Andrew Oliver, Esq., of Salem, Mass.— <i>Trans. Amer. Soc.</i> , ii, 74.
'64	Theory of Waterspouts. By the same. <i>Ibid.</i> , 101.
'64	Of several Fiery Meteors seen in North America. By Prof. John Winthrop.— <i>Phil. Trans.</i> , abr. xii, 142.
'67	Rhenus. By Manuel Lassala, a Spanish ex-Jesuit and Scholar. The subject of this Latin Poem is the inundations of the Rhine. Valentia; also Bologna, 1781.
'67	Thoughts on Comets. By Prof. John Winthrop.— <i>Phil. Trans.</i> , abr. xii, 405.
'67	Concerning Wind and Waterspouts, Tornadoes and Hurricanes. By John Morgan, M.D.— <i>Trans. Amer. Soc.</i> , ii, 335.
'67	Sermon, occasioned by the Earthquake. By the Right Rev. Beilly Porteus, afterwards Bishop of London. Clarks. 12mo.
'68	On the history of the return of the famous Comet of 1682; with observations on the same. By Matthew Maty, M.D., Secretary of Royal Society.— <i>Phil. Trans.</i> , abr. xii, 263.
'68	A new Theory of Comets (Laws of Motion), &c. ; plainly showing that they are not solid, compact, fixed, and durable bodies, like those of the Planets, but that they are Solar Meteors or exhalations of the same nature with our smoke, which flying to a certain distance from the sun, thicken or draw together such a mass, that at last their own gravity forces them back into its blaze, where they

TABLE VII.—*Literature of Earthquakes, Comets, Storms, &c.—Contd.*

A.D.	
1768	A new Theory of Comets— <i>Contd.</i> no sooner arrive than they take fire, and are violently thrown off in right lines through the Universe, till their own flames have exhausted their substance. By Michael Wood, F.R.S. London. 8vo. 1s.
'69	An account of an Earthquake at Macao, and a short description of a singular description of Monkeys without Tails, found in the interior part of Bengal. By Stephen de Visme.— <i>Phil. Trans.</i> , abr. xii, 607.
'69	Fall of Rain at Bridgewater and at Mounts Bay, 1769. By Wm. Borlase, LL.D., F.R.S.— <i>Phil. Trans.</i> , abr. xii, 46. The same as Mounts Bay 1770-71.— <i>Phil. Trans.</i> , abr. xiii, 126 and 325.
'69	Of the different Quantities of Rain which appear to fall at different heights, over the same spot of ground. By Wm. Heberden, M.D.— <i>Phil. Trans.</i> , abr. x, 659.
'71	Method of determining the strength and duration of Earthquakes. Dr. David Wark, Minister of Haddington. Essays, Phys. and Lit., iii, p. 142.
'71	Fall of Rain at different heights. The Hon. Daines Barrington.— <i>Phil. Trans.</i> , abr. xiii.
'71	The Inundation; or the Life of a Fenman. A Poem; with Notes, critical and explanatory. By a Fen Parson. London. Baldwin. 4to. 1s.
'72	The principal Elements, or primary particles of Bodies inquired into, and found to be neither those of the Chemists, nor of the Natural Philosophers; but Earth, Water, Air, Fire, and Frost. Taken from the observance of nature and numerous experiments. London. 8vo. 2s. 6d.
'73	Sermon on an Earthquake in Shropshire. By Rev. John Fletcher, Vicar of Madily, Yorks. London. 8vo. 1s.
'73	On the effects of a Thunderstorm on the House of Lord Tylney, at Naples. By Sir Wm. Hamilton, F.R.S.— <i>Phil. Trans.</i> , abr. xiii, 453. (See 1783.) In the <i>Phil. Trans.</i> of about this period will be found numerous papers by this nobleman on the Eruption of Vesuvius, &c.
'73	The Naturalist's Calendar. By the Hon. Daines Barrington. Contains an account of the Wars, Plagues, Earthquakes, Floods, Conflagrations, Thunder and Lightning, &c., which happened from the creation of the world to A.D. 416.
'75	There was reprinted by Wm. Benson Earle, from a scarce pamphlet, an exact relation of the famous Earthquake and Eruption of Mount Etna in 1669; to which is added a Letter from himself to Lord Lyttleton, containing a description of the late Great Eruption of Mount Etna in 1766. London. 8vo.
'76	Observations made during the late Frost at Northampton. By Anthony Fothergill, M.D., F.R.S.— <i>Phil. Trans.</i> , abr. xiv, 116.
'77	Account of the late Earthquake felt at Manchester. By Thomas Percival, M.D., F.R.S.— <i>Phil. Trans.</i> , abr. v, 201.
'78	An Account of an Earthquake felt at Manchester and other places. By Thos. Henry, F.R.S.— <i>Phil. Trans.</i> , abr. xiv, 330.
'79	The Universal System; or, Mechanical causes of all the appearances and movements of the Visible Heavens; shewing the true powers that move the Earth and Planets in their Central Rotation. With a Dissertation on Comets, the nature, cause, matter, and use of their tails, and the reason of their long trajectories. Likewise an attempt to prove what it is that moves the Sun round its Axis. By John Lacy. London. 8vo. 1s.
'80	Mémoire sur un Paratremblement, &c., or, a Memoir concerning a Counter-Earthquake and a Counter-Volcano. By St. Lazare de Bertholon, a French Philosopher. [The author considered he had devised a method of preventing these convulsions in the bowels of the earth!]

TABLE VII.—*Literature of Earthquakes, Comets, Storms, &c.—Contd.*

A.D.	
1781	An History of Jamaica and Barbadoes; with an Account of the Lives lost, and the damages sustained in each island by the late Hurricane, &c. London. 8vo.
'81	A General Account of the Calamities occasioned by the late Tremendous Hurricanes and Earthquakes in the West India Islands, &c. By Wm. Fowle, M.D. London. 8vo. 1s. 6d.
'81	Account of an Earthquake at Hafodunas, near Denbigh. By John Loyd, F.R.S.— <i>Phil. Trans.</i> , abr. xi, 151.
'81	Account of several Earthquakes felt in Wales. By Thomas Penant, LL.D., F.R.S.— <i>Phil. Trans.</i> , abr. xv, 85.
'81	Account of the violent storm of Lightning at East-Bourne in Sussex. By Owen Salisbury Brereton.— <i>Phil. Trans.</i> , abr. xv, 21.
'81	Fatal effects of a Thunderstorm in Scotland. By Patrick Brydone, F.R.S.— <i>Phil. Trans.</i> , abr. xvi, 186.
'81	The Phoenix; or, Reasons for believing that the Comet is the real Phoenix of the Ancients. By John Goodridge. London. 8vo. 3s.
'82	On a new kind of Rain. From the Italian of Chev. Joseph Gioeni, "an inhabitant of the third region of Mount Etna."— <i>Phil. Trans.</i> , abr. xv, 165.
'82	Quantity of Rain which fell at Barrowby, near Leeds. By George Lloyd, Esq., F.R.S.— <i>Phil. Trans.</i> , abr. xv, 193.
'83	M. Dolomieu, a French Mineralogist. Pub. Voyage aux Isles de Lipari, fait en 1781, ou Notices sur les <i>Æoliennes</i> , pour servir à l'Histoire des Volcanos. Paris. 8vo. [Herein he gives a particular account of their Volcanoes.]
'83	Also Mémoire sur le tremblemens de terre de la Calabrie. (This was in 1784 translated into Italian.)
'83	Of the Earthquakes which happened in Italy from February to May, 1783. By Sir Wm. Hamilton, F.R.S.— <i>Phil. Trans.</i> , abr. xv, 373. (See 1773).
'83	Account of the Earthquake in Calabria, March 28, 1783. By Count Francesco Ippolito.— <i>Phil. Trans.</i> , abr. xv, 383.
'83	Of a remarkable Frost on the 23rd June, 1783. By Rev. Sir John Cullum, Bart., Antiquary.— <i>Phil. Trans.</i> , abr. xv, 604.
'84	De effectibus Terræ Motus in Corpore Humano; concerning the Effects of Earthquakes on the Human body. Bologna. 8vo.
'85	On the Crooked and Angular appearance of Lightning in Thunderstorms. By James Logan, a Scotchman, residing in America.— <i>Phil. Trans.</i> , abr. viii, 68.
'86	Advertisement of the expected return of the Comet of 1532 and 1661, in 1788. By Nevil Maskelyne, D.D., F.R.S., astronomer.— <i>Phil. Trans.</i> , abr. xvi, 147.
'88	The Theory of Rain. By James Hutton, M.D., F.R.S.E.— <i>Trans. Soc. Edin.</i> , i, 41 (in 1792).
'88	An Account of the Hurricane at Barbadoes on the 10th October, 1780. By William Blendy.— <i>Ed. Phil. Trans.</i> , i, part first, 30.
'89	The Frost; a Little Poem for Great Folks. London. Buckland. 8vo. 6d.
'90	Sermon preached in the Low Chapel of North Shields, in the County of Northumberland, November 22, 1789, for the Benefit of the Orphans of the Unfortunate Seamen who perished in the violent Storm off the East Coast of England, October 30 and 31. To which is prefixed an Account of the Gale, and a list of the vessels that were wrecked in it. By Rev. L. Girdle, of Newcastle-upon-Tyne. London. 8vo. 1s.
'92	Theory of Rain, Principle of Fire, on the Power of Matter, &c. James Hutton, M.D., F.R.S.E. Edinburgh. 4to.
'92	A narrative of an Earthquake felt in Lincolnshire and the neighbouring Counties. By Edmund Turner, F.R.S.— <i>Phil. Trans.</i> , abr. xvii, 220.

TABLE VII.—*Literature of Earthquakes, Comets, Storms, &c.—Contd.*

A.D.	
1795	Journal of the Thermometer, Hygrometer, Barometer, Winds, and Rain, kept at Windsor, Nova Scotia. Rev. William Cochrane.— <i>Trans. Irish Acad.</i> , ix, 133.
'96	Account of an Earthquake felt in various parts of England; November 18, 1795. By Edward Whitaker Gray, M.D.— <i>Phil. Trans.</i> , abr. xviii, 31.
'97	The Hurricane; a Theosophical and Western Eclogue. By William Gilbert: London. 12mo.
'98	The Storm; a Drama. By George Holford, M.P. Of this only a few copies were printed.
'98	Frost at Midnight. By S. T. Coleridge. London. 8vo.
'98	The Dominion of Jesus Christ over the Elements of Nature; a Sermon upon the Storm of 1703. By the Rev. Robert Winter, D.D. 8vo.
1803	Curious particulars respecting the Mountains and Volcanoes, and the effect of the late Earthquakes in South America, &c. Baron Humboldt.— <i>Nicholson's Journ.</i> , iii, p. 242.
'05	Account of a Storm of Salt which fell in January, 1803. By Richard Anthony Salisbury, F.R.S.— <i>Trans. Linn. Soc.</i> , viii, p. 286.
'07	Observations on the nature of the new celestial body discovered by Dr. Olbers; and of the Comet which was expected to appear in July last, in its return from the Sun. By William Herschel, LL.D., F.R.S.— <i>Phil. Trans.</i> , abr.
'09	A Narrative of the proceedings on board His Majesty's ship "Tharsus," from the 4th to the 15th September, 1804; being an account of a Hurricane which she encountered in the Atlantic Ocean. Folio.
'10	The Storm Improved, containing an interesting narrative of the loss of the "Liberty," of Kincardine, and the Substance of a Discourse delivered to the crews of the several vessels wrecked, with the Author, in the neighbourhood of Saltfleet. By John Clunie, A.M. 2s.
'11	A Sermon, occasioned by the appearance of the Comet. By Joseph Jefferson, Dissenting Minister, Basingstoke. 8vo.
'11	A Short Account of the late Inundation in the neighbourhood of Boston. By Saml. Partridge, M.A., Vicar of Boston. 12mo.
'16	Account of the late Earthquake in Scotland. By Thos. Lauder Dick, F.R.S.— <i>Annals Phil.</i> , viii, 364.
'49	The Progress of the Development of the Law of Storms and of Variable Winds, with the practical application of the Subject to Navigation; illustrated by charts and woodcuts. By Lieut.-Col. Wm. Reid, C.B., F.R.S.
	<i>Note.</i> —Mrs. Somerville stated several years since that about 255 earthquakes had occurred in the British isles, all slight. To avoid the effects of a shock predicted by a madman for the 8th April, 1750, thousands of persons, particularly those of rank and fortune, passed the night of the 7th in their carriages and in tents in Hyde Park.—VINCENT.
'77	A Lecture on the Winds, Ocean Currents, and Tides, and what they tell of the System of the World. By Wm. Leighton Jordan, F.R.G.S.
	Also by same author, same year: The Winds, and their Story of the World.

Object of Preceding Tables.

The object of the preceding tables, is manifestly that of endeavouring to obtain a complete, or at all events a comprehensive view of the causes of famines, so far as they fall within the category of being the result of natural or unavoidable causes. We see first from an analysis of the table of famines, the causes to which they are mainly attributed. We then follow out these causes as a separate branch of inquiry. We suppose the facts presented in the several tables will act and react upon each other in such a manner that the law of famines may be deduced, at all events that the extent of cause and effect may be made in some degree apparent.

For the purpose of this analysis, it is necessary to limit our range to some one country. We take our own, for instance, and apply the test of frosts. Famines in Great Britain have resulted from severe frosts. We take the table of frosts, which I believe contains something like a complete record of those which may be regarded as historical. From this table we turn to that of famines. Has a famine usually resulted from intense frost? Here we must take into account a chronological incident. Under what is now designated the "old style," the year did not terminate until 25th March. The change took place in 1752, which year began on 1st January. It is very important to keep this fact in mind in most chronological inquiries. In this instance it is especially so. The frost of one year would usually affect the crops of the *next year*, prior to 1752. Where indeed the frost came in very early, so as to affect the harvesting of the grain—as is sometimes even now the case in North Britain—it might be that the famine would arise in the same year as the frost. The same remark will also apply to floods. But I need not dwell upon these details: for I am compelled to admit that when critically examined in this manner, the facts in the one table do not, taken as a whole, at all coincide—to say nothing of presenting complete harmony—with those in the other. There are some correspondences, but these may be simple coincidences. The same admission has to be made with respect to the other tables. If you attempted to produce a table of the famines of Great Britain from the combined details of the causes which are usually credited as producing famines, you would produce a result almost entirely out of harmony with actual recorded facts.

That this discovery and consequent admission is very discouraging after the labour bestowed is but too obvious. But we must not abandon all our efforts in despair. The facts presented in the several tables as facts are, I hope I may say, of essential value. They have not heretofore been presented in our *Journal*. To the statistician, as to the scientific inquirer, all facts are of value. My duty now is

to endeavour to account for this breakdown of a system of inquiry, which I venture to think was logically as also theoretically correct. This may have been occasioned by the cumulation of several causes. The first and most readily suspected being that the *data are incomplete*: an incompleteness of data must necessarily imply in-harmony of results. The answer on my part is that I have had recourse to all known authorities. The next consideration is founded upon the well known want of harmony in the chronology of early recorded events. You consult any two or three of the early chronicles as to the occurrence of any known incident. You will not unfrequently find one year's, two years' or even three years' variation in the dates of the respective writers, occasionally very much greater and more perplexing discrepancies. Before universal calendars, or a settled chronology obtained, the mode of computing time was usually by reference to the year the reigning sovereign had occupied the throne, as third of Richard II, &c., &c. In this manner mistakes may well have arisen. We know that such discrepancies have existed even as regards the date of particular Acts of Parliament—more than one chronological date being assigned to many of our more important legislative enactments. Still on the whole even these discrepancies may be harmonised, from the circumstance that great historical events do not usually happen in such immediate proximity, that the one may be mistaken for the other. In the use of comparative tables, however, where cause and effect are sought to be established, this conflict of dates becomes very perplexing, and occasionally entirely misleading.

Again, in order to a complete understanding of the causes of famines in any given country, the operation of the artificial causes, as *wars* (including invasions and blockades), *legislation* (including limitation of imports, extent of import duty, or enforced restriction of prices). The effect of *Pestilences*, as resulting from the neglect of the laws of public health, may be included in this category, although as a rule these latter are the results from rather than the occasions of famine. These will be considered in the second part of my paper.

Yet another consideration remains to be presented, and it is this, that it is more than probable that very frequently several causes combine to produce such a national calamity as famine, I mean a combination of natural causes. For instance, *frosts* following seasons of excessive *rain*, will be far more destructive of all vegetation than frost succeeding dry seasons. In this latter case the frost often benefits the soil, and advances vegetation by destroying largely its insect and reptile antagonists. And here I am disposed to think my tables may be of real value, as affording means of comparison not otherwise readily available.

I ought indeed at this point to notice the poetic, perhaps I had better say the dramatic, or even mythical aspect of the subject. No one can be familiar with the old chroniclers, from whom we necessarily draw so much of our historical information, without being struck with the tendency of these persons to pile up the agony, so to speak, on certain great historical occasions. Comets in early times occasioned great dread; eclipses of the sun, or moon, were deemed to be direct manifestations of the wrath of the Almighty; hurricanes, whirlwinds, waterspouts, were but lesser indications of the same divine vengeance; while earthquakes formed as it were the *grande finale* to the provocation of erring man against his Creator. That the poets should seize upon such events to give dramatic effect, and lend force to their creative outpourings, is but natural. They often deal with history as represented by popular tradition.

Thus Virgil in his "Georgics," speaks of comets and eclipses as appearing synchronously with great historical events, such as the death of Cæsar :

"Sol etiam extincto miseratus Cæsare Romam,
Quum caput obscurâ nitidum ferrugine textit."

* * * * *

"nec diri toties arsere comete."

which may be rendered :

"The sun himself on Rome
Looked down with pitying eye when Cæsar fell,
And hid his face in gloomy shrouds of night."

But that the chroniclers, who were mostly ecclesiastics, should ever have stooped to exaggerate their narratives with monsters seen in the heavens, with showers of blood, with sulphuric emanations, with unnatural eclipses, and with other most unreasonable horrors, and these too not unfrequently associated with those historic personages who had incurred the displeasure of the Church—which perhaps is the only sort of excuse, but can be no justification—seems remarkable. It is loading history with a perpetual lie, on the small pretext of affording an example to other heretics and offenders! It may be replied that the combined miseries of the plagues of Egypt, afford at least a precedent for such horrors; while the sun standing still on the command of Joshua, prepares one for all that may follow at any time or place. I am not of this opinion, and I have accordingly eliminated from my tables as far as possible the elements which I regard as purely mythical. Two very mild instances of such exaggeration are given, the one under dates 1382-96; the other 1658.

But while endeavouring to exclude all hypothetical considerations from my paper, there yet remains to be considered a **meteo-**

logical solution of famines in various parts of the world, to which I have not in any way alluded at present, and this is the "sun-spot" theory, which is the most modern of all famine theories, and in the further elucidation of which several of the tables included in this paper may yet be of value. It will of course be understood that in attempting to deal with this, "the newest scientific play-thing" as I have seen it called, I make no pretension to scientific knowledge. I shall deal here, as in other parts of the paper, with recorded facts, and shall only follow where these may lead.

Indian Famines.

In this connection our minds naturally revert to Asia, and more particularly to that important empire of *India*, with which we have so much concern. I have endeavoured to make my table of famines complete as to India in modern times.* The first great famine there of which we have any knowledge—many earlier ones of lesser magnitude have occurred—was that of 1769-70, "when the Government did not attempt to cope with the disaster; when the people died of starvation by hundreds of thousands; and a desolation spread over the country, the marks of which have not wholly ceased." (*Vide* Col. George Chesney, "Indian Famines in Nineteenth Century," November, 1877.) We see in our table that it is estimated that *three millions* of the population then died of starvation, an estimate I am not inclined to deem exaggerated; and we are told that Bengal has been subjected to famines periodically since—why *since*, as distinguished from *previously*, does not appear. In 1799 there was again a famine in Hindustan, and in 1803. In 1810 there was a famine in the North-West Provinces, and from 2 to 8 per cent. of the population died, 90,000 in one central district alone! In 1813-14 Hindustan again; in 1832 in Madras, when 200,000 perished in the district of Guntoor. In 1837-38 in Northern India, "the worst famine of this century"—but this was written before the more recent famines we now have to record. In 1861 famine in North-West Provinces; in 1866, "awful famine" in Orissa, one million and a-half of the people, half the population of London, reported to have perished. In 1874, the Bengal famine, which cost this Government 6½ millions sterling, for an organised system of relief; and lastly that of 1877, more terrible perhaps than any during this century, over which our Indian experience extends, and which it is estimated will cost in all nearly 10 millions sterling!

In all there have been thirty-four famines (above twenty on a

* It is impossible for me to express too fully the obligations I am under to Mr. F. C. Danvers of the India Office, for the assistance he has rendered me regarding the Famines, and Famine incidents of India.

large scale) in India in just over a century. I much regret that I am not able to present more complete statistical details as to some of these. Under the former Government of India, usually known as the Company's rule, statistics were not a feature. Many of the historical details which I have been able to give in my table of famines, are drawn from a most able report, prepared some little time since, but not yet made public—much as its facts are needed just now—from some State reason, or want of reason, which I do not profess to understand. If I had found myself in possession of anything like complete meteorological data regarding *India*, I should have endeavoured to examine the causes of famines in that empire in much more detail.

Mr. F. C. Danvers says:—

"Famines in India have arisen from several different causes; but the most general cause has not been failure of the usual rains. Distress has also, however, been caused by hostile invasions; by swarms of rats and locusts; by storms and floods; and not unfrequently by the immigration of the starving people from distant distressed parts into districts otherwise well provided with food supplies; and occasionally by excessive exports of grain into famine-stricken districts; or by combinations of two or more of the above-named circumstances." Report, 1878, p. 2.

There is one peculiarity about the famines of India which deserves especial notice, and it is this: certain districts only are so visited at any one period; and in India, taken as a whole, there is always produced food enough for all its inhabitants. The *immediate* question is therefore one of transport only; the ultimate question is of course the prevention of famines. This state of things has given rise to a somewhat fierce controversy between the respective advocates of railway and canal (or irrigation) extension. Into that controversy I do not propose to enter further than to say: for the purposes of Imperial Government one cannot but admit that railways are of the first necessity. For the purposes of local and domestic government, canals (with which can be combined irrigation), are at least in those districts most subject to famine droughts, of paramount importance on the score of humanity. The soil of India under irrigation never fails to produce a crop. In some districts canals, as a means of transport, have been found to pay as a financial investment. In others they have involved immense loss, in the way of an unproductive lock-up of capital. In some parts of the empire, the country is naturally suited to canal and irrigation works; in others the physical or engineering difficulties are very great. The problem for the Government in the last-named cases is a very serious one. Irrigation where it can be successfully carried out, in fact is a preventative of famines. Railways afford the means of distributing food when famines arise; and in the meantime they aid greatly in developing the resources

of the country. I know the anxious care which the present Government have bestowed upon this question. If the near occurrence of two such severe famines could have been foreseen, it would no doubt have been wise to have expended in irrigation works the 12 or 15 millions sterling which have been spent or lost by their occurrence, even if this enterprise had not been pecuniarily productive. To meet probable future requirements, an extended and well-considered system of combined water carriage and irrigation must be devised. A return upon the outlay may be provided in the shape of a tax or water charge upon the districts benefited.*

This important question is ably discussed in an important paper by Colonel George Chesney, in the "Nineteenth Century," for November, 1877.

Sun-Spot Theory.

When or by whom the sun-spot theory as applying to India was first observed upon, I need not stop to inquire. There seems to have been several independent inquirers, as is very often the case. The name of Mr. W. W. Hunter is notably associated with the inquiry; and in the "Nineteenth Century" for November, 1877, is an interesting article, the joint production of Mr. J. Norman Lockyer and Mr. Hunter, to which those who desire details beyond those here given may with advantage refer.

In the article named, after an explanation of the more recently observed phenomena connected with the sun, the writers proceed to state (p. 584):—

"All these phenomena ebb and flow once in *eleven years*. So that every eleven years we have the greatest activity in the production of uprushes, spots, and prominences; and between the period of *maximum* we have a period of *minimum*, when such manifestations are almost entirely wanting. In fact, the spots may be taken as a rough index of solar energy, just as the rainfall may be taken as a convenient indication of terrestrial climate. They are an index but not a measure of solar activity; and their absence indicates a reduction, not a cessation of the sun's energy."

Now if the matter could have been reduced to as simple a problem as is here indicated, the effect of the variations of the sun's spots upon rainfall and other climatic conditions would have been easily within our reach, for even twenty-two years of meteorological

* In speaking of *India* it is always to be remembered that just as famines become obviated, and a regular food supply be obtained for the people, so will the population increase. All that is now done must therefore be considered in the light of the additional millions and tens of millions which will be planted upon that soil within the next half-century.

Sir J. Strachey had come to the conclusion that as a sort of insurance against future famines, he must have a surplus of some 2,000,000*l.* annually.—Lord George Hamilton in the House of Commons, 1878.

observations would have shown us whether the results were perfectly uniform, or whether much variation was to be expected. Besides such regularly recurring results could not have escaped observation at an earlier period. A correspondent to the "Times" (14th December, 1877), Mr. A. Cooper Ranyard, supplied the following important qualifications:—

"Will you permit me to draw attention to the fact that the periods of *maximum* and *minimum* of sun-spot development do not occur at uniformly regular intervals of time, as some of your correspondents appear to assume? It is true that on the average sun-spot *maxima* occur at intervals of 11·11 years, but occasionally thirteen or fourteen years will elapse between two periods of sun-spot *maxima*. In one instance in comparatively recent times—viz., between 1788·1 and 1804·2—16·1 years elapsed; while, on the other hand, between the sun-spot *maxima* of 1829·9 and 1837·2 only 7·3 years elapsed. Dr. Wolf, of Zurich, in a memoir which will shortly be issued by the Royal Astronomical Society, shows that the divergence from the mean period has during the last two centuries and a-half amounted on the average to 2·03 years. The *data* which he has made use of are derived from a very extensive series of manuscript and printed record of sun-spot observations dating from 1610 (shortly after the invention of the telescope) to the present time. An examination of these records shows that the irregularity in the development of sun spots is so great that only vague prognostications can be made with regard to the time of an approaching *maximum*; for example, six months before the time assumed from the eleven-year law as a time of *maximum* development, it would be impossible upon examination of the sun to assert that the period of *maximum* development had just arrived, or whether it might be delayed for another two or three years. And what is true with regard to periods of *maximum* development is also true for periods of *minimum* development. It will thus be seen that if the newly-broached theory were fully established, the Indian Government would be as far as it is at present from being able to predict a year or two beforehand whether any particular season would be a season of famine or no."

From this we also learn, what indeed was to be expected, that the theory will receive the most critical investigation and elucidation.

We have yet to understand the mode in which the changing aspect of the sun makes itself felt on this planet. The "Nineteenth Century" article thus enlightens us (p. 585):—

"It was, perhaps, scarcely necessary thus to clear the ground for the general statement, now an *accepted fact of science*, that with the exception of tide work, all our terrestrial energies come from the sun. In the great modern principle of the conservation of energy, we have not only proof that the actual energy stored up in our planet is constant, but that the solar energy is the great prime mover of all the changeable phenomena with which we are here familiar, especially in the inorganic world. That energy gives us our meteorology by falling at different times on different points of the aerial and aqueous envelopes of our planet, thereby producing ocean and air currents, while, by acting upon the various forms of water which exist in those envelopes, it is the fruitful parent of rain, and cloud, and mist. Nor does it stop here. It affects in a more mysterious way the electricity in the atmosphere, and the magnetism of the globe itself."

We are next told how it is that these effects are variable, instead of being constant, as most of nature's operations are:—

"If the energy radiated from the sun were constant, we should expect that the terrestrial conditions which depend on the amount of solar energy received at any one place would be constant too. The daily change in the earth's rotation, the yearly change brought about by the earth's revolution would be there; but there the change would stop. The fire, as well as the air, earth, and water, would be constant quantities. *But suppose the fire to be variable, in other words, suppose the solar energy to change in amount from year to year. To the daily and unusual changes of our terrestrial phenomena would then be added another change; a change absolutely irregular and unpredictable, if the variation in the amount of solar energy were subject to no law; but a change as regular as the daily and the yearly one, if the variations in the amount of the solar energy were subject to a law.* The period of the additional terrestrial change would agree with the period of the solar change, whatever that might be; and to the daily and yearly response of the earth to the solar energy, there would be superadded an additional change, depending upon and coincident in the main with the period of the solar change. We have said coincident in the main, because it is easy to imagine in the case of meteorological phenomena dependent upon a long train of intermediate influences between the impact of the solar energy and the final result, that time would be taken for their development. In this case, although the dependence would be there, an exact coincidence would not. There would be a lagging behind, and this lagging behind would possibly not be the same at different latitudes."

I think we may now (thanks to our learned instructors) feel that we understand the *rationale* of sun-spot influences sufficiently for the purposes of this paper.

Reverting again more particularly to *India*, I desire to supplement what I have already said by the following able remarks communicated to the "Times" by Mr. Henry F. Blandford, of the Meteorological Association of Calcutta, under date 9th November, and put in that journal 4th December, 1877:—

"Before concluding, I would say a few words on a subject which has been much discussed in the newspapers during the last few months, viz., the supposed recurrence of famines in Southern India at intervals of about eleven years, in accordance with the period of sun-spot variation. The idea that years of *maximum* sun spots are also years of abundant harvests, originally suggested by Sir William Herschel, has lately been brought into prominence mainly through the labours of Mr. Meldrum of the Mauritius, whose latest paper on the subject, published in the monthly notices of the Mauritius Meteorological Society, gives figures based on the rainfall statistics of a large number of stations in different parts of the world. These seem to show that the average rainfall of the globe is subject to a regular fluctuation through periods of about eleven years, and that at its *maximum*, which occurs about a year later than the epoch of *maximum* sun spots, the mean fall is about 15 per cent. greater than at its *minimum*, which precedes that of *minimum* sun spots by one or two years. The "Register of the Presidency Town of Madras," lately published by Mr. Pogson, shows a greater fluctuation than this, apparently about 25 per cent.; but this seems to be quite local. Two other stations in Southern India, equally involved in the present famine (the only two I may mention, for which I have been able to obtain many [forty] years' registers), viz., Bangalore and Mysore, show a large irregular fluctuation, but scarcely an appreciable regular oscillation according to the eleven-year cycle; and the mean of seven stations, all situated in tropical India (including Madras), gives a probable periodical fluctuation not exceeding 9 per cent. Such a fluctuation is, of course, quite insufficient to warrant the expectation of the regularly recurrent famines. I cannot but think that some confusion has been unconsciously introduced into the

discussion, by the fact that the name of the town which shows the largest fluctuation is also that of the province, in one part or another, of which famines have occurred, for many of the famines which are supposed to illustrate the law of periodicity, have chiefly affected districts which receive their principal rainfall at a different season of the year from Madras itself and the Carnatic, and also from a different source. That of 1866, for instance, is chiefly memorable as the Orissa famine; and while it involved certain districts of Madras, the dearth also extended to Western Bengal and Behar, regions which, like Orissa itself, receive their rainfall during the summer monsoon—the latter chiefly from the west coast, the former from the Bay of Bengal. That of 1854 was most severe in Bellary, which also depends mainly on the summer monsoon from the west coast. The law of famine recurrence even in southern India is, then, by no means so simple as one might be apt to infer from much that has lately been written on the subject; and it becomes still more complicated if we include northern India, which is a region of equal importance from an administrative point of view. The worst famine of this century was that of 1837-38, 1837 being a year of *maximum* sun spots, the highest in this century previous to 1870; and 1870 was preceded by the famine of Rajpootana and the North-West Provinces in 1868-69, and followed two years later by great scarcity in Khandeish (in the Bombay Presidency), and again two years later by that of Behar and the neighbouring districts of the North-West Provinces; the memorable famine of 1861, in the upper North-West Provinces, also followed immediately on a year of *maximum* sun spots. My conclusion is then, that we are as yet far from having discovered the law of famine recurrence. As far as the evidence yet put forward can be said to point to any law of periodicity, it is this—that severe famines seem to tend to occur more frequently about the time of *minimum* sun spots in southern India, and about that of *maximum* sun spots in northern India; but the evidence is very imperfect, and requires thorough examination. It is unquestionable that a great deficiency of rainfall in one region is in many cases attended by a great excess elsewhere. The rains which were withheld from Madras at the close of 1876, were discharged over the Bay of Bengal, producing two severe cyclones; and while the North-West Provinces during the present summer have suffered an almost entire loss of the crops of that season from continued drought, those of Pegu have been drowned and washed away by the extraordinary floods of the Irawaddy."

He adds:—

"The law discovered by Mr. Meldrum is a most important one, and everyone must rejoice at the attempts which are now being made to trace out in the vicissitudes of the atmosphere the influence of the varying action of the sun. But no good will be effected by hasty and crude generalisation, and while much may be expected from a patient study of meteorological physics, the hasty promulgation of empirical laws, founded on insufficient *data*, can only lead to disappointment. A prophecy that the rains would again fail this year in Madras, purporting to bear the authority of Mr. Pogson, the Government astronomer of Madras, has been largely circulated in the newspapers in England and India. Happily it has been falsified by the event."

I ought here to mention that two distinguished members of our own body have thrown some additional light on the sun-spot theory. Professor W. Stanley Jevons, F.R.S., read a paper at the British Association meeting at Bristol in 1875, on "The Influence of the "Sun-Spot Period upon the Price of Corn." This falls rather to be noticed in the second part of my present paper than here. Mr. Henry Jeula, who as Secretary of the late Statistical Committee at Lloyd's, had extended means for observing the influence of the

seasons in relation to storms, in a letter published in the "Times" of 19th September, 1877, furnishes some facts of much interest.* The following are the chief passages of his letter:—

"The account given in the 'Times' of the 28th of March last, of Dr. W. W. Hunter's researches into the Madras rainfall and its possible connection with sun spots, led me to throw together the scanty materials available relating to losses posted on Lloyd's loss book, to ascertain if any coincidence existed between the varying numbers of such losses and Dr. Hunter's results, for as the cycle of rainfall at Madras coincides, I am informed, with the periodicity of the cyclones in the adjoining Bay of Bengal, as worked out by the Government astronomer at Mauritius, some coincidence between maritime casualties, rainfall, and sun spots, appeared at least possible, and you may consider even so humble an attempt to enlarge the area of comparison to be alike of some use and interest.

"I was only able to obtain *data* for two complete cycles of eleven years—namely, from 1855 to 1876 inclusive—while the period investigated by Dr. Hunter extended from 1813 to 1876, and his observations related to Madras and its neighbourhood only, but the losses posted occurred to vessels of various countries, and happened in different parts of the world.

"It was necessary to bring these losses to some common basis of comparison, and the only one available was the number of 'British registered vessels of the United Kingdom and Channel Islands'—manifestly an arbitrary one. I consequently cast out the percentage of losses posted each year upon the number of such registered vessels for the same year, and also the percentage of losses posted in each of the eleven years of the two cycles upon the total posted in each complete cycle, thus obtaining two bases of comparison independent of each other.

"The results were sufficiently remarkable to justify me in communicating my materials to Dr. Hunter, and he has most courteously worked out with me a series of tables showing the final results; these would occupy too much of your space, but from them I hand you a short comparative one, which may be of some interest.

"The dates of the losses are those of report, not of occurrence, which would be earlier—sometimes considerably earlier—consequently they should lag somewhat behind the cycle, as they appear to do. The characteristics of Dr. Hunter's theory of cyclones have been so fully discussed by meteorologists, and are so clearly set forth in Mr. Buchan's letter in the 'Times' of the 8th instant, that I need only say the earlier and later years of the cycle show a *minimum* of sun spots and rainfall, while the years in the centre of the cycle show a *maximum* of both.

"Dividing the eleven years, as nearly as the number will allow, into three parts, and taking the percentages of losses posted, I find a coincident *minimum* period of four years at the extremities of the cycle, a *maximum* period of three years in the centre of the cycle, and an intermediate period of four years lying between the *maximum* and *minimum* periods.

"The annexed table brings this clearly in view. For the figures relating to maritime casualties I am responsible; those referring to rainfall and sun spots have been kindly furnished me by Dr. Hunter, and for them he is responsible. The sun spots are taken from a list previous to that just issued by Dr. Rudolf Wolf, of Zurich, but the differences in these lists, Dr. Hunter states, do not affect the general aspect of the case.

* I have only learned since this paper was prepared, that as far back as 1846, another distinguished member of our Society, Mr. Hyde Clarke, prepared a paper: *A Preliminary Inquiry into the Physical Laws Governing the Periods of Famines and Panics*. This appeared in the "Railway Reporter" for that year; and I shall probably have occasion to refer to it in some detail in the second division of my present paper. Again, in 1838, this learned gentleman had contributed to "Herapath's Railway Magazine" a paper *On the Mathematical Law of the Cycle*; leading up to the same line of observation.

A Table showing the Mean Percentage of Losses Posted on Lloyd's Loss Book upon the Total Registered Vessels of United Kingdom and Channel Islands; also on the Total of the Losses Posted in each Cycle of Eleven Years, 1855-76 inclusive; Compared with the Eleven-Year Cycles of Sun Spots and Rainfall at Madras.

	Mean Percentage of Losses.		Average Rainfall at Madras, 1813-76.	Average Relative Number of Sun Spots, 1810-60.
	On Registered Vessels of United Kingdom and Channel Islands, 1855-76.	On the Total Posted in each Cycle of Eleven Years, 1855-76.		
Minimum Group— Mean of 1st, 2nd, 11th, and 10th years of cycles	11'13	8'64	Inches. 41'58	14'26
Intermediate Group— Mean of 3rd, 4th, 9th, and 8th years of cycles	11'91	9'21	51'37	42'46
Maximum Group— Mean of 5th, 6th, and 7th years of cycles	12'49	9'58	52'65	64'10

"In conclusion, permit me to express the hope that the great practical importance of Dr. Hunter's theory, if proved to be true, in relation not only to Indian famines, but, it would seem, to maritime commerce generally, will lead to a full and exhaustive examination of all the evidence bearing upon it."

A previous correspondent in the "Times" had suggested that the theory of rainfall and sun-spot connection should be conducted rather by a Fellow of this (the Statistical Society) than by a meteorologist. This was deemed by Mr. Jeula a sufficient justification for his entering upon the inquiry. I trust it may also be deemed a sufficient excuse for myself on this occasion.

The second part of my paper—which will treat of the "Artificial Causes of Famines," as enumerated in the earlier part of this paper—will be presented to the Society whenever a favourable opportunity may arise; and I trust therein to show that the interest attaching to famines is by no means exhausted at present.

NOTE.—In finally revising this paper, I have brought the facts down several months later than the date at which it was read. The incidents of 1878 are in many respects important. I do not know—in the absence of systematic records—if they exceed those of other years, or whether the apparent increase is simply due to the more extended observation which the pursuit of the present investigation has induced me to make.

DISCUSSION *on* MR. WALFORD'S PAPER.

GENERAL SIR ARTHUR COTTON confined his remarks to Indian famines, with which, he said, he was practically acquainted. Too much could not be said in favour of the Governor-General, who first attempted to grapple with the terrible evil of famines. It appeared astonishing that after having had experience of famines and having successfully grappled with them at one time that the administration should not have immediately proceeded to prepare for another. There was always abundance of time to prepare for a famine in India: therefore why should there not be a regular set of rules laid down as to what was to be done in the case of a famine actually occurring. But why should not measures be taken so that their recurrence might be prevented altogether. There were at least thirty or forty districts in India as to which there was no possibility of famine, because the Government by their measures had already provided against it. What was the reason they had not extended their measures to other districts? It was to his mind unaccountable. But there is another point. There was always plenty of food in India, and therefore, as stated in the paper, the first thing to be considered was the mode of conveyance of food to a failing district from those districts that had abundance. This was the lesson he had learnt, and it had taken him many years to learn it. The point he wished to insist upon was that nothing but water in a country like India could carry goods at such low prices, and in such vast quantities as were absolutely essential for the well-being of a country like India. There were actually at present before the Government plans for works which had been waiting to be carried into execution for tens and twenties of years, and it was imperative that these works should be carried out at once. There was nothing to hinder such a course being adopted. People said that India was already so poor that it could not be loaded with debts; but in saying so, they set aside the fact that irrigation works were thoroughly remunerative. The head of the irrigation department in the Indian Office had shown by plain figures this as a fact; and if the Government had accomplished these things during their apprenticeship, when they were finding their way to arrive at the knowledge of a matter which the natives had acquired hundreds of years before, how much more should they hope to go on prosperously now that they had such immense experience to work upon. At the present moment 15,000,000*l.* had been spent upon irrigation and navigation works. No doubt many mistakes had been made in the carrying out of the works, but experience would lead them not to repeat those mistakes, and it would rather be an encouragement to proceed still further. The principle of Mr. Fawcett and those of his school, was that a penny saved was a penny got, but his theory with regard to India was that every penny spent was a shilling gained, if judiciously spent, that is upon

works really suited to the wants and circumstances of India, and he was sure the works that had been executed abundantly proved this. In dealing with this question in the House of Commons, every failure, however temporary or however partial, had been dwelt upon, but not one word had been said as to particular or general success. He was perfectly satisfied from his own experience that the whole of India could be made into a perfect garden, and from the knowledge and means they at present possessed, famines in India could be put an end to for ever. The question was not so much what would be the profit of these works to the Treasury, but what would be the total effect they would have on the community. The $7\frac{1}{2}$ per cent. profit stated by the head of the irrigation department, was a mere trifle compared with the actual total results. He could safely say that the general result of all the works that had been executed was 100 per cent. Mr. Henry Morris had lately published a book in which he gave an account of the district with which he was connected for some time.*

Mr. F. C. DANVERS (of the India Office) said that the paper was a most excellent and able one. With reference to the causes of famine he did not quite agree that what were called natural causes were beyond human control, because in the first instance, when the world was created, there was a certain economy in all parts of the universe under which it was impossible that such things as drought or flood would occur to interfere with what was necessary for human existence. The increase of population, the great demand for fuel, the desire to extend cultivation, cutting down forests without due regard to where they were situated, and other causes, had tended in a great measure to bring about famines. If man had been instrumental in undoing the work of nature, it was only a

* His words are, "at the commencement of our rule, the district composed part of a neglected province, and at one time it was brought into a state of extreme impoverishment and distress. It was desolated by famine, and misgoverned by the numerous landowners and their advisers. Since the introduction, however, of the admirable system of irrigation, it has brightened and revived. Famine is unknown. The people are prosperous and contented. It is the garden of the north province. The revenue instead of being reduced, as it once was, to the verge of bankruptcy, is more elastic than it has ever been. Its population has more than doubled; the universal prosperity of its inhabitants is proved by their being better fed, better clothed, and better educated than formerly, its commerce has flourished, and its trade has developed in a marvellous degree; and it may confidently be asserted that it is in as peaceful, happy, and prosperous a condition as any part of Her Majesty's dominions."

Mr. Morris gives the population in 1842 at 560,000; by the last census it was 1,600,000. The revenue has increased from 230,000*l.* to 570,000*l.*, the exports from 60,000*l.* to 800,000*l.*, and the imports from 20,000*l.* to 200,000*l.*, and the traffic on the main canal is 200,000 tons a-year. The mortality on the average preceding 1872 was under 2 per cent., and this included the upper feverish tuloohs; a strong proof of the healthiness of India where the water is regulated. Why should not the same be done for every district of Her Majesty's Indian dominions? Think of this district in the midst of the famine tract, instead of losing hundreds of thousands of her own people, as she formerly did, selling a full crop at famine prices, and saving hundreds of thousands of lives in the adjoining districts.

question of time for man to restore the work of nature by planting and other processes, so that these droughts and floods would be put an end to or be modified. As to inundations, there were three causes given, 1st, Unusually high tides, supposed to be occasioned by lunar influences; 2nd, The tides acted upon by wind storms, and 3rd, Undulation of the earth's surface in particular localities from the subterranean influence of earthquakes. He would suggest that the destruction of trees on hill-sides, which in many instances had been known to be followed by a rapid rush of water down the hill-side, filled the rivers beyond what they were able to carry, and so caused floods along their banks, very often destroying crops and causing temporary famine in small districts. To the list of periods of excessive drought which the author had given, he (Mr. Danvers) thought there might be some addition made in regard to Indian famines: one being in 1837-38, another in 1860-61, and a third which took place more recently in southern India, particulars as to which he should be happy to furnish Mr. Walford with, if he desired them. The other day he had a correspondence with a French gentleman, as to what was the proportion of the area that should be covered with forest in different countries. In northern France it was considered to be 17 per cent. of the area; but in tropical countries it was considered desirable to have a much larger proportion; and investigation ought to be made with the view of ascertaining what were the correct figures in that respect. As regards Indian famines, the author had stated that the first great famine of which we had any knowledge was that of 1769-70. There was a record of several famines before that of which very little was known, and if the author wished it, he (Mr. Danvers) would supply him with the information of what was known as to these earlier famines. With regard to the famine of 1769-70, the author stated, "in our table it is estimated that *three millions* of the population in Bengal then died of starvation," an estimate which I am not inclined to deem exaggerated; and we are told, that Bengal has been subjected to famines periodically since—why *since*, as distinguished from *previously*, does not appear. Now he (Mr. Danvers) thought that in all probability when the population increased, and where the laws of nature were interfered with in consequence of that increase, it might naturally be expected that as time went on, famines would increase until man had been sufficiently wise to replace what he had so wantonly destroyed in previous years. He had given a great deal of attention to the question of irrigation in India, and to a certain extent he agreed with Sir Arthur Cotton, that with regard to many parts of that country more might be done. It could not, however, be done all at once, because in many parts where the population were not accustomed to irrigation, they were unwilling to take the water at first, and they must be educated to do so. While they were being educated, the Government were losing the interest, but this did not matter if they could be got to take the water eventually. In a great part of India such as the Deccan and southern India, in an ordinary season, tanks might be filled for the purposes of cultivating the land; but to incur a very considerable outlay in those

districts with a view to averting famine would be useless, but the benefit of such works in ordinary seasons would doubtless be great, as by enabling larger crops to be raised the ryots would be enriched, and therefore better able to meet the consequences of failure of crops in years of drought and famine. In northern India water could be taken from those rivers which depended upon perpetual snow. With regard to water navigation, he did not think that water transit would answer for all parts of India, especially in those parts where there were railways.

Mr. HYDE CLARKE said he did not wish to enter upon the disputed question of irrigation or canalisation in India. In reference to the question of climate and rainfall, it was a matter of considerable importance to ascertain what proportion of these there should be in a country. It was a disputed point in forest science, but in this country there was not the information available for ourselves, and yet there were many forms in which it was desirable to collect the data. There were countries where, for agricultural purposes, the trees in the hedge rows were cut down, and the consequences of this had to be ascertained; but in this country there was a great variety of conditions. If they went to the other side of the Channel, they would find the whole country laid bare. He thought that more attention should be given to our scattered trees, because it was not a question merely of forest, but a question of distribution of trees; and attention being called to this subject, they might be able to bring it into a scheme for the preparation of agricultural statistics. He regretted he had not been able to put his hand on the diagrams he made in 1846, to illustrate his former observations; but the mode in which he proceeded was a thoroughly economical one. As they all knew, there was a very long series of corn prices for six centuries, and he tabulated these, which gave the best exponent of practical meteorological results. The consequence was, he got the short ten years' period, but although it would go on very regularly for a long series, all of a sudden it would be missing; and in his opinion there was a period of fifty-four or one hundred and four years that operated, and besides that, there was a larger cycle still; therefore apart from all the questions of the sun-spot theory, that had been subsequently started, there was no possibility of foretelling the economical results of the phenomena so as to be of material use, and there was nothing in the discussions that had taken place, that in his mind held out the hope that it would attain to results like that. At the same time it was a matter of very great importance to follow up the same subject, and the only way to do it was that in which Mr. Walford had begun it.

Mr. R. H. PATTERSON said he had been asked by Mr. Walford, to make a few remarks as to the great and terrible famines in China, which had been omitted in the paper. There was one going on at this moment in China, which was quite as bad as any of those which had occurred in our Indian Empire. Such famines have existed in that country, where they kept very accurate statistical

records, from time immemorial. China in this respect differed somewhat from India. There was a double cause of famine in China, the one was tremendous inundations, the other was drought. The inundations were owing to the fact that at least two of the rivers in China were amongst the largest in the world. They flowed down from the vast snowy mountains of Central Asia, and, as almost always happened in those countries, the bed of these rivers was higher than the level of the surrounding country; consequently whenever the banks broke, whole provinces were submerged, and sometimes literally hundreds of thousands of people were drowned. On the other hand, the famines were, like those in India, produced by drought. What seemed to him almost a special point in connection with Mr. Walford's paper was, that there was a number of records of terrestrial phenomena given, but what was wanted also, was a record of astronomical phenomena. So long as the configuration of the earth, the distribution of land and water, remained as it was, there could not be any great changes in the conditions of the seasons, except from extra-terrestrial influence. It must be owing to the cosmical action of the surrounding orbs, of which the greatest actor was the sun. Hence the importance recently attached to the solar-spot theory. That theory was a thing of yesterday. Why? Because the statistical records of these things in Europe were but of yesterday. But it was not new in the old times. In Egypt and Babylon astronomical phenomena were recorded for two thousand years; and not a few strange things that are told by Herodotus and others, as to the so-called powers of the priesthood, the Royal Society and the learned class of those days, were simply owing to the fact that science in some departments of knowledge means fore-knowledge. The acquirements of learned people in those days might be attributed by the masses, and even by themselves, to inspired knowledge or divination; but it might be better attributed to forecasting the future by the light of the past. If these learned classes had kept and compared terrestrial with solar phenomena for even five hundred years, they must have known (with all submission to our conceit), much more than the Royal Society yet does.

Mr. W. TAYLER after alluding to the value of the paper, said that famines were not unknown in ancient times, and were mentioned by Livy, and in modern times, by Voltaire, Usher, and others, but it was remarkable that none of the writers had suggested remedies for the prevention of famines; we had now however the advantages of science to work upon, and if when Mr. Walford, as promised in the latter part of his paper, gave another paper on the "artificial causes of famines," he would also give the means for their prevention, he would do a great service, not only to the Society, but also to the whole world.

SIR RAWSON RAWSON hoped that the paper would be productive of important consequences. The various facts had been collected with remarkable industry, but it was scarcely to be expected that a complete list of these events could be made at the first attempt.

He hoped that the paper would lead to the co-operation of others who had studied the matter, in assisting Mr. Walford to complete his tables; and he hoped that in the second portion of Mr. Walford's paper, a still further list of such remarkable events as he had described would be furnished. When he (Sir R. Rawson) was in Barbadoes, he availed himself of the opportunity of ascertaining the fall of rain over a long series of years in that climate, and its influence upon the sugar crop; and he was happy to say that the report he had made had led to important local results. He was able to make the estimate that for about ten or twelve years, each inch of rain in the antecedent year before a crop of sugar was worth about 800 hogsheads of that article. In the first year of the ten years it was about 800; in the last year it was about 800, and on the average of ten years it was also about 800. In the last three years of his government, there was a great advance, consequent, he believed, on an extension of the area under cultivation; and for each inch of rain it was 900 and upwards.

His reason for noticing this was that Lord Salisbury wrote and asked for a number of copies of his report, in order to send it out to India, with the view of establishing a record of rain there, in order to anticipate a deficiency of the rice crop consequent on a deficiency of rain fall. That was one of the practical results of an observation of astronomical phenomena; and he believed that if anybody would work out a comparison of the different events noticed by Mr. Walford and others, they would be able to gather from a parallelism of these phenomena, some results which would be highly valuable and instructive.

Mr. E. H. HALL thought that there was not so much need with regard to this subject of scientific as of practical knowledge. What was wanted in case of famine was corn and rice for the people who were absolutely starving. He had been out in China. The provinces bordering on the Yang-tse river in the time of Polo were considered the garden of the world. But they could not be so considered now. There was no doubt that the great famines that had desolated northern China, were largely caused by the cutting down of the belts of timber in the mountain ranges and hills. He should like to call Mr. Walford's attention to an article that had appeared in the previous week's "Saturday Review," which was prepared by some one very conversant with the subject, and which corroborated what he had learned when he was in China. He would recommend a perusal of those figures by Mr. Walford, because they supplemented in a valuable way what he had advanced as to the cause of famines. America was comparatively a new country, and therefore the rule to be applied with reference to the destruction of timber would be seen there more particularly than elsewhere. On the Missouri and Kansas and other great rivers, the destruction of timber not only materially affected the period of growth, but also the drought periods. It was well known that in China there had been difficulties almost as great as famines to contend with. There had been an epidemic of rebellion, and there had been in the central districts locusts, which were really the grasshoppers of that empire. In the

south of China there were floods; so that it might be said that there were three great plagues inflicted upon them, and he could not conceive any more terrible spectacle than that now presented in that vast empire. The condition of our fellow subjects in India must cause us even more concern from our connection with them. The Chinese we had been accustomed to consider as barbarians. He was happy to see that funds had been raised for their support, because to the Chinese this country owed very much, though not so much as to India; and they were never worse off than at the present time.

Mr. ABUL-FAZL M. ABDUR-RAHMAN, of Calcutta, craved the indulgence of the meeting to make a few remarks, as he came from a country (India) which in his opinion had suffered more than any other from the dreadful calamity of famine. In considering the subject of famines it might be divided into three parts, namely, the causes, the effects, and the means of preventing them. He would not enter into the causes; and it was well known what terrible effects famines had on India and other parts of the world. With regard to the prevention of Indian famines, he was rather sorry that none of the speakers had made any reference at all to *emigration*. It was true that Sir Arthur Cotton and some others had said something about irrigation and cheap railway system as means of preventing such calamities. The population of a country like India was very large, and tended to increase more rapidly than the food which was raised from the soil. They lived almost entirely upon agriculture, and their labour produced only food enough for their annual subsistence. This was one obvious reason why the intensity of famine was so much felt in India. No provision had yet been made to accumulate crops for future purposes. With regard to *emigration* it was one of the most useful things in a country like India, where the population was so very large; but he thought it was utterly inapplicable to India, although he was not prepared that evening to give any reasons for it, but this much he could safely say that if the Mahomedans of India (of whom he was one) had now the same spirit which they once had, they would have left the country and gone to some other fertile part of the world. The Hindoos were naturally fettered to their country by their religion, and they could not for a moment even conceive the idea of leaving it for a better one. With regard to irrigation it was very effective where there was a natural deficiency of water, but it was also true that the Orissa Canal and the Madras Irrigation Company's Canal had failed, and the Government had lost about 4,400,000*l.* It would be found from Sir Arthur Cotton's pamphlets and lectures, and also from State papers, that irrigation works had done a great deal. Lord Salisbury himself admitted the great importance and value of such irrigation works. The Eastern and Western Jamna Canals, the Canvery Delta and the Godavery Delta had given very good returns. It had, however, been said, that the want of education of the people caused them not to use the water. But such was not the case; the *rāyat* being the poorest man in India, being involved in heavy debts, was driven to 'still worse

circumstances by famines, and if he at all survived the time of adversity, he tried by some means or other to recover his circumstances; when the Government came down upon him with a fresh tax to realise the expenses of irrigation, which the *ráyat* would naturally be unable to pay, and consequently be obliged to refuse water from the canal just completed. That was the real cause of failure of irrigations of which the Government complained. He strongly agreed with the views of Sir Arthur Cotton and those in favour of extension of irrigation works in India. If the Government were to continue to spend a certain amount of money on irrigation, and after the completion of such works, were to allow a certain number of years to the *ráyats* to take water without any fresh payment until such time as they would be in a better position to pay fresh taxes in addition to numerous other taxes they were already paying, they no doubt would continue to take water and begin paying for it. They were all much obliged to Mr. Walford for giving such an elaborate exposition of the causes of famines, and he earnestly hoped that the next paper he gave would deal at length on the best methods and the best means for the prevention of the famines of the world in general, and famines of India in particular.

The Rev. Mr. DOXSEY suggested that if the author would give a scale of the comparative density of the population in those parts of India where famine had occurred, it would greatly increase the value of his most excellent paper.

Mr. PAUL thought there was one point in the chronology of famines (Table I) which might be amplified. Between the years 1708 and 493 B.C. there were no records of famine given. He believed that there were records in the Scriptures of some eight or nine famines that occurred at intervals of one hundred years. The general remark at the commencement of the table might cover these; but perhaps Mr. Walford would supply the details. It was likewise instructive to notice that the famine in 1708, which was spoken of by Mr. Walford—the seven years' famine of Egypt—extended so far across as to China, showing the great extent of the famine that existed at that time. There were, he believed, records in China which agreed very closely with the dates given by Mr. Walford with regard to Egypt.

Another important point in connection with the remarks made regarding drought, as to the cutting down of forests and the consequent influence on the rainfall, was the gathering up of water in tanks or in dams. If water were spread over a swampy country, it was absorbed much more easily than if the same volume were collected in a tank or a dam; consequently, if by artificial means water were gathered at various points, the rainfall in the district where the water was so collected would be altered.

Mr. WALFORD, in reply, said that he had felt the extreme difficulty of the subject, and none was more conscious than himself of the deficiencies in the paper; but if he were to carry out the

suggestions of some gentlemen, he did not know that he should ever live long enough to finish the task. He had found that the subject was inexhaustible; and if he had known what he now knew, he should hardly have had courage to begin the paper; but he had become interested in the subject, and had pursued it, every day however becoming more discouraged: feeling that at least one of the objects he had in view steadily vanished from his grasp. He hoped to elaborate the sun-spot theory, if such a theory could really be deduced; but he had made every table from independent sources, hoping that they would re-act on one another, with the view he had in his mind. He could by another mode of proceeding have made the tables fit with admirable accuracy, but if he had done so, he should not have been doing his duty, or have been carrying out the objects of the Society in pursuing statistical inquiries to the very end, regardless of everything but the facts. The facts here, as in other cases, were indeed the only safe means to an end. He should have been delighted to have heard Professor Stanley Jevons, Mr. Jeula, and some others, who had studied the sun-spot theory more than himself, offer some remarks, if time had permitted. In the second part of his paper he did not propose to deal with the meteorological, or natural, but with the artificial causes of famine; and if he lived long enough to give a third part of the paper, he would pay some attention to the prevention of famines; but this was no part of the task he had set himself. He did not know how famines might be prevented. With regard to particular localities, no doubt the collected facts would teach something; but he had no doubt also that famines would continue. He regretted he had no data of the earlier Chinese famines; but whether it was owing to the density of the population, or other causes, famines were of very frequent occurrence in that empire. He found it was impossible to obtain authentic particulars. But for Mr. Danvers' able report he did not know where he should have been with regard to some of the Indian famines. He greatly appreciated what Mr. Danvers had done, and what he had promised to do. If he (Mr. Danvers) would revise some of the geographical boundaries, he had spoken of, and would point out some of the more minute circumstances surrounding the localities wherein famines were found most to prevail, he would not only be doing a service to this Society, in its effort to supply correct information regarding important national events, but to humanity at large. He should take the earliest opportunity of presenting to the Society the second part of his paper.

The OWENS COLLEGE, MANCHESTER, and a NORTHERN UNIVERSITY.

By JAMES HEYWOOD, M.A., F.R.S.

[Read before the Statistical Society, 18th June, 1878.]

ON the 20th July, 1877, a large and influential deputation waited on the Duke of Richmond and Gordon, K.G., Lord President of the Council, in favour of the grant of a royal charter to the Owens College, Manchester.

Memorials for the formation of a university at Manchester were presented to his Grace, from the Bishop, the dean, and the clergy of the Church of England, of the diocese of Manchester, as well as from the mayors and corporations of Manchester, Salford, Bolton, Bury (Lancashire), Oldham, Blackburn, Burnley, Rochdale, Clitheroe, Southport, Warrington, and Stockport. The Independent College, and the Wesleyan College, near Manchester, and the Incorporated Law Society, Manchester, added their memorials in favour of the Owens College being constituted the University of Manchester.

The Bishop of Manchester, Lord Winmarleigh, and Lord Aberdare, attended on the deputation. Lord Frederick Cavendish, M.P., represented his father, the Duke of Devonshire, the President of the Court of Governors of the Owens College, and the constituencies of South East Lancashire, Mid Cheshire, Denbighshire, Manchester, Salford, Ashton, Blackburn, Bolton, Bury (Lancashire), Burnley, Hythe, Liverpool, Oldham, Preston, Stalybridge, Stockport, Warrington, and Wigan, were represented by members of parliament in the council room.

The Duke of Richmond and Gordon observed, that the deputation was composed of all parties, both clerical and political; and he remarked on the advantage which the medical school would possess from the peculiar facilities existing in Manchester for medical study. His Grace promised the attention and consideration of the cabinet to the subject brought before him.

Another deputation of considerable influence, waited upon the Duke of Richmond and Gordon, and Sir Stafford Northcote, Bart., M.P., Chancellor of the Exchequer, on the 15th May, 1878, to present to the Government memorials praying that if a new university should be created, its principle might be that of a confederation of colleges, and that its name might not be merely local. This second deputation comprised the Marquis of Ripon and Lord

Frederick Cavendish, M.P., for the Northern Division of the West Riding, and President of the Yorkshire College at Leeds. On this deputation the constituencies of the eastern division of the West Riding, as well as of Leeds, Sheffield, Bradford, Halifax, and Kendal were represented. The memorials contained the signatures of Bishops, deans, professors at Oxford, head masters of schools, mayors and town councils of fifteen northern towns, and seventeen educational and scientific societies, together with the names of a large number of persons directly or indirectly interested in educational matters.

Statistics were given of the Yorkshire College at Leeds, which possesses 56,000*l.*, in addition to annual contributions from various quarters, and a bequest for a scholarship fund. There are nine professors in this college, and 156 day students, besides other students who attend in the evening. Dr. Heaton mentioned that he was connected with an important medical school in Leeds, and observed that hitherto the various medical schools of the country had competed on equal terms, and on their own merits, but as the Manchester medical school forms an integral part of the Owens College, if the power of conferring on its students degrees in medicine were bestowed on that college, the Manchester school of medicine would possess an advantage which none of its provincial competitors possessed.

Lord Frederick Cavendish expressed an opinion that a new university ought to be established closely connected with the colleges of the north of England, and adapted to the circumstances of the great industrial community there.

The Duke of Richmond and Gordon thought, that in the present state of public affairs, both at home and abroad, the deputation would not expect the Government to come to any very speedy decision on this great and intricate question.

The Chancellor of the Exchequer had been struck with what fell from one of the speakers (Mr. Baines), about the increasing demand for additional university facilities. "Undoubtedly," observed Sir Stafford Northcote, "the great and increasing demands does call for some increase of the supply. But whether that increased supply is to be furnished by making better use of the institutions you have, or by establishing new institutions, is a matter of considerable importance, and one on which it is very undesirable that we should by any precipitate action make a mistake."

"While the movement of the Owens College has been of great advantage in awakening attention to this subject, and eliciting a proposal for consideration in the first instance, the attendance of this deputation to-day, is a considerable consequence of that

“ movement, and will go some way towards helping the Government to solve the problem before them.”

On the 29th May, 1878, a deputation from the governing body of the Owens College, Manchester, had an interview with the Chancellor of the Exchequer, with reference to the granting of a charter to the college. Mr. Hibbert, M.P., and Mr. Birley, M.P., accompanied the deputation.

While the subject of a new university in the north of England is under consideration, the progress of public opinion may be noticed, by which Manchester has of late years been selected on different occasions as a readily accessible and influential centre of a wide-spread district.

In matters of political interest, it may be mentioned, that in November, 1842, Yorkshire as well as Lancashire were largely represented at a meeting of merchants, manufacturers, and other capitalists, held in the Manchester Town Hall, to insist on the repeal of the Corn Laws. Contributions were given from Leeds, Huddersfield, Halifax, and Bradford, as well as from Lancashire communities, and 50,000*l.* were subscribed for the Anti-Corn Law League, with Manchester as its centre.

Again, on the 2nd March, 1852, Manchester was selected for a numerous meeting of merchants, manufacturers, spinners, men of capital, and men of industry, against any re-enactment of corn laws; a fund was raised at this meeting, which in four weeks amounted to 70,000*l.* Among the Yorkshire contributors, were R. Milligan, M.P., Bradford, 1,000*l.*; Sir Titus Salt, Bart., Saltaire, 1,000*l.*; F. Schwann, of Huddersfield, 500*l.*; Thomas Turton and Sons, Sheffield, 250*l.*; R. Solly, Sheffield, 100*l.*; James Marshall, Leeds, 100*l.*; J. Wilkinson, Leeds, 100*l.*, &c.

At a later period, after the settlement of free trade, other questions arose, and the Earl of Beaconsfield, at that time Mr. Disraeli, M.P., received at Manchester, deputations and memorials from many towns in the manufacturing district.

On the 30th April, 1878, a peace conference took place of a large body of delegates from different northern localities. The first resolution was moved by the President of the Liverpool Liberal Association, and seconded by the President of the Leeds Liberal Association; Manchester being about equidistant from the two towns of Liverpool and Leeds.

The general intellectual culture, in the development of free public libraries, shows that the inhabitants of Manchester appreciate to a large extent the privilege of borrowing books from rate-supported institutions. The following results are given of the lending departments of free public libraries at Manchester, together with the adjoining town of Salford, and at Liverpool and Leeds:—

Lending Departments of Free Public Libraries, 1876-77.

	Volumes in Stock.	Issue of Volumes to Borrowers in a Year.
Manchester.....	80,921	518,019
Adjoining town of } Salford	30,283	224,195
	111,204	742,214
Liverpool	42,035	416,099
Leeds	51,427	398,456

In the reference departments of free public libraries, the old town hall of Manchester, a spacious apartment, is devoted to the central collection of books of reference in that city.

When the Owens College was established in 1851, I was one of the first trustees of that institution, and we agreed to request the University of London to allow the new college to be affiliated to that metropolitan seat of learning.

Dr. Rothman was then registrar of the University of London, and on meeting him shortly after the arrangements had been settled of the college being connected with the University of London, he said to me, that he was glad that we had not asked for a University at Manchester.

At that time the net endowment of the Owens College, from the munificent bequest of the late Mr. John Owens, amounted to 90,000*l*. The college gradually obtained a large measure of public support. Ample funds were added by the generosity of inhabitants of Manchester and others. In 1871 an Act of Parliament was obtained, which enlarged the original intentions of the founder, and enabled the college to be reconstituted. An excellent site of about four acres was purchased near the thoroughfare of Oxford Road, in the southern part of the city of Manchester, and there Mr. Alfred Waterhouse, A.R.A., erected well arranged academical buildings in the early Gothic style. Lecture rooms were provided for classical, mathematical, English and other subjects. Natural philosophy and engineering had their lecture rooms, laboratory, workshops, and museum. An admirable natural history museum and geological collection aided the science department of the college. A large lecture theatre was built, and two spacious and well ventilated chemical laboratories were erected, one for first year students, and the other for students of more advanced attainments. A good light is furnished by large windows. Among the collateral apartments may be enumerated a metallurgical laboratory, a spectroscopic room, a photographic room, a dark room for pho-

tometry, a lecture room for organic chemistry, and a gas analysis room. The Owens College possesses a thoroughly organised school of experimental and applied science; and the medical department has also well lighted and airy rooms, suitable for its different branches of study, where the pupils are prepared for examinations in medicine and surgery.

During the present century, the University of Edinburgh has frequently had eminent Lancastrians among its *alumni*. The late Sir James Kay Shuttleworth, Bart., and Dr. Henry, took their degrees in medicine with honour at Edinburgh, and various sons of Manchester bankers and manufacturers have resorted to the Scotch capital for academical education.

The matriculation of Edinburgh students, who do not intend to graduate, consists merely of the payment of a moderate fee, and the signature of a declaration in Latin about the study of true piety, the sedulous attendance on appointed lectures, and the keeping clear of dissensions and tumults.

For regular students in any of the faculties of arts, theology, law, or medicine, a matriculation examination is required.

For degrees in medicine at Edinburgh, the examiners comprise the professors in the faculty of medicine; and, in addition, three persons appointed annually by the University Court, who receive 100*l.* each, voted by parliament. The examiners in arts, with some of the medical examiners, conduct a preliminary examination of candidates for medical degrees in Edinburgh.

At the Owens College there is now a staff of medical professors, similar in number to those of the University of Edinburgh, and the organization of a complete examination system for degrees can be readily carried out in that college.

The General Medical Council of the United Kingdom are desirous of approximating to a uniform standard of medical qualification in England, Scotland, and Ireland, and the Scotch and Irish examinations are usually deemed less severe than those of England.

Before entering on their professional studies in the Owens College, it is requisite for students in medicine to pass an examination in general knowledge; Latin, mathematics and English are required by all the examining bodies recognized by the General Medical Council. Usually a modern language, or one of the experimental sciences, such as chemistry or natural philosophy, at the option of the candidates, is expected in addition at the entrance examination.

The lectures of the Manchester Medical School qualify for admission to the examinations of the Royal College of Physicians and of Surgeons, of the Apothecaries' Society, and for the degrees in medicine, and the honours, exhibitions and scholarships con-

ferred by the University of London. The lectures in the Owens College on anatomy, physiology, and chemistry, are recognised by the University of Edinburgh.

In the medical school of the Owens College, 166 students attended classes during the session 1875-76, as follows:—

	Number of Students.
Descriptive anatomy	91
Practical „	118
Physiology	39
Practical physiology and histology	42
Comparative anatomy.....	20
Chemistry.....	45
Surgery.....	78
Medicine	89
General pathology and morbid anatomy	27
Medical jurisprudence and hygiene	49

SUMMER SESSION.

Practical chemistry.....	36
Botany	38
Materia medica	20
Midwifery	48

An extensive medical library, and an anatomical and pathological museum, belong to the Medical Department of the Owens College.

There are seventeen professors in the medical department, one demonstrator and assistant lecturer in physiology; and one similar officer in anatomy. Hospital instruction is afforded by the physicians and surgeons of the Manchester Royal Infirmary, where a vast variety of cases are continually admitted. In the department of arts, science, and law, there are fifteen professors, one assistant lecturer in Greek and Latin; one lecturer on the English language; two assistant lecturers in mathematics; one demonstrator in the physical laboratory; one assistant in engineering; three special lecturers in jurisprudence and law; three demonstrators and assistant lecturers in chemistry; one assistant lecturer in physiology; one lecturer in mineralogy; and lecturers in French, free-hand drawing, and harmony and musical composition.

Altogether there is a professional body of thirty-two in the department of arts, science, and law.

Evening classes are attended to by the college professors and lecturers, with the assistance of three teachers in classics, the English language, and Spanish.

On the 22nd June, 1877, there had been during the session of that year:—

	Number of Students.
Arts, law, and science department.....	415
Medical department.....	175
	<hr/>
	590
Evening classes.....	900
	<hr/>
	1,490
	<hr/>

or allowing for double entries, 1,450 students.

An annual examination of day students takes place in June, the result of which, June, 1877, is exhibited in the following table:—

THE OWENS COLLEGE *Arts, Laws, and Science Department. Annual Examination, June, 1877.*

	Number in the Class.	Number Examined.	First Division.	Second Division.	Third Division.	Fourth Division.
Greek, senior	34	25	5	3	14	3
„ higher junior.....	55	39	7	5	18	9
„ lower „	22	10	—	3	6	1
„ Testament, voluntary	20	4	3	1	—	—
Extra sen., classical (Latin and Greek)	10	3	—	3	—	—
Latin, senior (higher section)	6	3	2	1	—	—
„ (lower „)	38	23	6	9	6	2
Latin, higher junior	71	60	10	18	20	12
„ lower „	23	17	—	4	7	6
Comparative philology	7	2	2	—	—	—
English language, senior	23	13	6	2	5	—
„ junior	100	68	13	27	23	5
English exercise and com- position	14	8	6	2	—	—
Early English, senior	1	1	1	—	—	—
„ junior	3	2	—	2	—	—
English literature	42	21	5	7	6	3
Ancient history	14	7	3	2	2	—
„ elementary	9	8	5	3	—	—
Modern history	101	52	6	19	20	7
Extra history (German)	4	3	3	—	—	—
Natural philosophy, senior mathematical	6	4	3	1	—	—
Natural philosophy, junior mathematical	27	13	5	6	2	—
Mechanics, senior experimental	104 {	58	10	11	32	5
„ junior „		20	4	8	5	3
Physics, extra.....	6	5	2	1	2	—
„ experimental	70	48	5	10	15	18
Physical laboratory	20	8	4	4	—	—
Logic and mental and moral philosophy	20	16	5	3	5	3
Political economy	10	5	4	—	1	—
Practical surveying	6	—	—	—	—	—
Engineering, 1st year	18	13	2	5	4	2
„ 2nd „	15	11	5	1	2	3
„ 3rd „	10	8	4	3	1	—

OWENS COLLEGE. *Annual Examination, June, 1877—Contd.*

	Number in the Class.	Number Examined.	First Division.	Second Division.	Third Division.	Fourth Division.
Geometry and mechanical drawing	40	5 3rd year 12 2nd year 9 1st year	4 5 5	1 3 2	— 3 1	— 1 1
Mathematics, higher senior...	8	4	3	—	1	—
Mathematics, lower "	29	8	2	3	—	3
Mathematics, high junior, higher section	16	8	2	3	2	1
Mathematics, high junior, lower section	42	21	4	5	5	7
Mathematics, lower junior, higher section	27	19	5	4	6	4
Mathematics, lower junior, lower section	76	52	9	19	10	14
Jurisprudence and law, general course	20	2	2	—	—	—
Jurisprudence and law, special courses	20	3	3	—	—	—
Jurisprudence, Roman law	7	2	2	—	—	—
" tutorial class	6	—	—	—	—	—
Chemistry lectures, senior	53	34	7	7	20	—
" junior	152	96	10	16	45	25
Technical chemistry, 1st course	12	9	3	3	2	1
" 2nd "	21	8	5	3	—	—
Analytical chemistry lectures	37	26	3	10	10	3
Chemical laboratory, 3rd year	98	2	2	—	—	—
" 2nd "		17	4	8	5	—
" 1st "		32	7	16	9	—
Organic chemistry lectures		8	3	2	3	—
Chemical philosophy	4	2	2	—	—	—
Mineralogy lectures	8	2	2	—	—	—
" practical	5	1	1	—	—	—
Animal physiology and zoo- logy	40	18	3	7	8	—
Botany	62	38	12	12	5	9
Geology and palæontology	20	9	5	2	2	—
French, higher senior	11	9	4	3	2	—
" lower "	29	21	5	9	7	—
" higher junior (A)	34	27	7	9	8	3
" " (B)	33	23	6	7	6	4
" lower junior	7	4	2	1	1	—
German, senior	29	16	5	6	5	—
" junior	26	18	3	7	4	4
" literature	7	—	—	—	—	—
Hebrew Bible (voluntary)	11	8	2	1	—	—
Free hand drawing	24	16	6	2	2	6
Harmony and musical com- position	13	3	2	1	—	—

Note.—The numbers in the class give the total number entered to the class, including those who withdrew in the course of the session.

The ages of the students in the department of arts, science, and law, are given as follows:—

	Number of Students.
Under 16 years	19
Between 16 and 18.....	148
„ 18 „ 20.....	106
Above 20.....	142
	<hr/>
	415
	<hr/>

Persons seeking admission as students, must have attained the age of 14 years, and those who are under 16, are required to pass a preliminary examination in English, arithmetic, and the elements of Latin.

It will be seen from the foregoing table of the Annual Examination (1877) that there were 100 students in the junior English language class; their principal subject consisted in the grammatical structure and rudimentary history of the English language. About once a fortnight *vivâ voce* examinations were held, and examination papers given out. Exercises were also given on the theory and practice of composition.

In modern history, there were 101 students. Examinations were held on the whole course of English history up to the year 1688. Written exercises from time to time were required in this class.

Chemistry attracted a junior class of 152 students, for whom the course of lectures comprised the laws of chemical combination, and a description of the physical and chemical properties and the mode of preparation of the non-metallic elements and of their compounds.

The Owens College has two scholarships annually in classics: one in political economy, one in chemistry, two in mathematics, and one in physiology. The college also gives exhibitions in classics, the Greek Testament, and mathematics.

Nine subjects are comprised in the matriculation examination of the University of London, viz.:—

Latin.

Any two of the following languages, Greek, French, German.
English language.

English history and modern geography.

Arithmetic and algebra.

Geometry.

Natural philosophy.

Chemistry.

In 1877 36 students of the Owens College passed the matriculation examination of the University of London. There were

also 17 first B.A. and 4 second B.A., as well as 8 first B. Science, and 3 second B. Science, and 12 who passed the preliminary scientific M.B. examination.

For degrees, the successful candidates of the Owens College in the University of London were thus arranged:—

	First B.A.	Second B.A.	First B.Sc.	Second B.Sc.
1876	8	7	8	4
'77	17	4	8	3

	Preliminary Scientific M.B.	First LL.B.
1876.....	8	1
'77.....	12	—

In 1876 one M.A. passed, belonging to the Owens College, and one succeeded in the first scriptural examination in the Hebrew and Greek Scriptures, and in Christian evidence and Scripture history.

Among the Masters of Arts in the University of London, June, 1878, were 1 in Classics, Owens College and University College, Oxford; 1 in Classics, Lancashire Independent College and Owens College; and 1 in Mathematics, Owens College, and Merton College, Oxford.

Matriculation, on account of its severity in the University of London, may be regarded as corresponding with the previous examination in the University of Cambridge, which comprises eight papers on the following subjects:—

One of the four gospels in the original Greek.

One of the Latin classics.

One of the Greek classics.

A paper of questions in Latin and Greek grammar, with reference principally to the set Latin and Greek subjects.

Paley's "Evidences of Christianity."

Euclid, books i, ii, iii; the definitions 1—10 of book v; and propositions 1—19, and A of book vi.

Arithmetic.

Elementary algebra.

Moderations at Oxford may be regarded as corresponding with matriculation in the University of London. It is termed the first public examination at Oxford, and comprises the following subjects:—

Latin and Greek Grammar.

Either logic or algebra with three books of Euclid.

The four gospels in Greek.

One Latin author, and one Greek author, brought up by the candidates.

In Oxford Moderations, questions are given in grammar and philology, and in logic or mathematics; passages are set for translation from the authors brought up, and English passages are set to be translated into Latin prose.

An antiquated custom still prevails in the University of Oxford, of including for the B.A. degree, under the term divinity, the thirty-nine articles of the Church of England. If a student should object to the examination in divinity, he is permitted to have secular books substituted for divinity, but instances are rare of any candidate asking for such a change in the appointed topics of examination.

Many of the tutors in the Oxford colleges have been educated in public schools, and they seem to have a pride in so far increasing the severity of university examination, especially in the department of translations from English into Latin or Greek, that they oblige the public schools to make Latin and Greek composition a very important subject of attention for most of the classes of their respective schools. At Christ Church, Oxford, a youth who could not translate English into Latin at sight, would not be allowed to pass the entrance examination.

In the report for 1877, of the Oxford delegates on local examination, the translations from English into Latin were mentioned as "the least successful part of the local examination in the Latin department."

A college of physical sciences has been for some time established at Newcastle-on-Tyne, connected with the University of Durham, and it possesses an easy entrance examination, consisting of reading, writing from dictation, either English or Latin grammar, arithmetic (including decimals), and geography. There are five subjects of study presented to the pupils in this college, mathematics, experimental physics, chemistry, geology, and natural history. The University of Durham grants to Newcastle College students, after proper examinations, the academical rank of associate in physical science; and these associates, after having been engaged for three years, at least, in some practical work of mechanical, mining, or civil engineering, may be admitted to a further examination, having principal reference to the work in which they have been engaged, and if successful, are admissible to receive the title of mechanical, mining, or civil engineer of the University of Durham.

If a federation of colleges in large towns of the north of

England should be formed with the Owens College, Manchester, as a centre, such a reward of scientific study would probably be esteemed by students in a new northern university.

Modern languages, such as French and German, ought to hold a commanding position in a northern university. Parents who now send their sons to foreign countries to learn modern languages, should have an opportunity of obtaining for them near home systematic study in the languages of Germany and France, which would enable the youths to translate English into French or German, with a readiness likely to be of practical use in mercantile life, both at home and abroad.

A conference between the authorities of the Owens College, Manchester, and some of the leading promoters of colleges in other large towns, such as Liverpool, Leeds, Bradford, Sheffield and Birmingham, would tend to increase an amicable understanding as to the common ground of academical education, in which all these colleges may unite.

The Owens College, by its income of 10,000*l.* a-year, and by its 600 pupils, possesses a substantial collegiate pre-eminence in Lancashire, which may also be acknowledged in Yorkshire. Public opinion in both those great counties seems to have set in with determination for a northern university, and the united population of both these north English provinces must exceed that of the whole of Scotland, where there have been for many years four universities. Union forms strength in an academical movement; and Glasgow affords an example of a vast community deriving intellectual power from a flourishing university in the midst of a great commercial population.

A northern university in Manchester would possess the Owens College as its oldest, largest, and most important college, and an amicable understanding between the authorities of that college and the managing committees of other similar institutions in large northern towns, would afford facilities for the development of a system of higher instruction, especially suited for the requirements of the present day in academical education.

DISCUSSION *on* MR. HEYWOOD'S PAPER.

PROFESSOR WARD (of Owens College), after expressing the obligations under which the College lay to the author of the paper for bringing the subject before the Society, said the question was one which would never have been raised had its urgency not been felt.

The reasons for the establishment of a new university were of two kinds; first, the positive advantages which might be expected from the establishment of a new academical centre in a different part of the country; and, secondly, there was dissatisfaction with the present system. They at Owens College were at present connected with the University of London, an arrangement which was no doubt excellent when it was made, and without which he did not think Owens College would have attained to its present state of progress. But serious difficulties had been found in the working of the college, and they would continue so long as it was dependent on the University of London. After detailing a few of the objections to the present system, he gave it as his opinion that the complete separation of teaching and examination was a mistake. He did not think that the plan of an establishment of a single examining centre in the country would be a feasible plan so long as Oxford and Cambridge existed. Neither did he believe in the plan of affiliating Owens College with the existing universities of Oxford or Cambridge. He thought the only remedy lay in a confederation of colleges, and this was a scheme which would not be rejected by any prudent Government. He and others who thought with him proposed that the position of each college should really only depend on its magnitude and efficiency. They wished the conditions of the confederation to be such as would make it a real, without allowing it to be a rash, one.

Mr. J. G. FITCH thought that taking precedents into account a confederation of colleges would not work well. The University of London was started fifty years ago under the idea that it was to be a great centre of a confederate body of colleges, and certain stringent rules had been laid down regarding the admission of candidates for degrees; but in course of time the University of London found itself unable to control collegiate instruction in the different colleges, or to assure itself that the certificates of studentship granted by those colleges had any value. So twenty years ago the university was thrown absolutely open to all comers. His impression was that a similar result would occur in the case of the Northern University. It would be found impossible to make the condition of collegiate residence a reality, and there would thus be a second university in England, which was a mere degree conferring centre; and which was not likely to possess any means of usefulness other than those already open to the University of London.

Mr. HERWOOD in reply recommended the authorities of the different colleges in large towns in the north of England to agree together. A combination of teachers, examiners, and students in their neighbourhood would be productive of a large development of local intellectual talent. Under the organisation of a local university in the north of England, fresh incentives would present themselves for the promotion of modern languages and modern sciences, as well as for the advancement of important trading communities.

MISCELLANEA.

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I.—*The Permanent Commission of the International Statistical Congress.*

THE following is taken from the *Statist* of the 27th July, 1878 :

“ Among the numerous congresses and conferences which are being held at Paris this year, we have specially to notice here the Permanent Commission of the International Statistical Congress. This Commission held its sittings from the 10th to the 20th inst., at the Ministry of Agriculture and Commerce; and although its meetings have been private, very full accounts have appeared in the *Economiste Francais*. The Commission, it appears, consists mainly of the officials at the head of the statistical service in each country, and differs from the congress which it represents in this—that at the meetings of the congress there is a ‘mixed multitude’ joined with the officials in their deliberations, and that the commission, instead of merely discussing various propositions for adding to or improving statistical knowledge, as at the congress, makes an attempt at least to accomplish some statistical work. At the recent meeting Germany was represented by Dr. Engel, the well known chief of the Prussian Bureau of Statistics; Dr. Becker, the chief of the German Imperial Bureau; Dr. Mayr, of Munich; Mr. Böhmert, of Dresden; and other eminent statisticians. Austria again was represented by Dr. Neumann-Spallart, professor of political economy in Vienna, and well known in England as an economist as well as statistician; Italy by Mons. Bodio, chief of the Italian Statistical Bureau, who has done much to bring Italian statistics up to their present state of perfection; Russia by M. Semenov, the Vice-President of the Geographical and Statistical Society of St. Petersburg, and by M. Poznanski; Norway by M. Kiaër; Sweden by M. Sidenbladh; and England by Mr. Giffen, of the Board of Trade, and Dr. Mouat, one of the Inspectors of the Local Government Board. Paris being the place of meeting, France was naturally represented more fully than any other country, its representatives comprising M. Deloche, chief of the Finance and Statistical Department at the Ministry of Agriculture and Commerce, and member of the Institute of France; M. Levasseur, professor at the University, and also member of the Institute; M. Tisserand, of the Ministry of Agriculture and Commerce;

M. Block, whose writings are perhaps better known in this country than those of any other foreign statistician; M. de Foville, chief of the Statistical Office at the Ministry of Finance; and editor of the *Bulletin de la Statistique*; M. Yvernès; M. Caignon; M. Cheysson; M. de Laboulaye; M. Flechey; Dr. Lunier, President of the Statistical Society of Paris; M. Toussaint Loua, Secretary of the Society; and other gentlemen of eminence in their respective departments. The minor countries of Europe, including Servia and Roumania, were also represented, but outside Europe Egypt seems to have been the only country which put in an appearance. Altogether the conference was one of leading men in statistical science in almost every country of Europe, but by no means of all the leading men whether inside or outside the pale of official life.

"As to the business of the Commission, the chief subject appears to have been the question of its future organisation, on which a sub-committee laboured for several days, with the result that a formal project was drawn up which the majority of the members present approved. The members are to be mainly officials engaged in statistical work in each country, but with power to associate with them the representatives of statistical societies, like the Statistical Society of London, and statistical experts who are not official. The Commission as thus constituted proposes not merely to revise the work and prepare the deliberations of the International Congress, but also (1) to carry through a grand scheme of international statistics, certain subjects being assigned to each country; (2) to publish a *Bulletin de la Statistique*, of which M. Deloche undertakes, not merely the editorship, but also the risk and expense; and (3) to publish an international *Annuaire*, containing a summary for a series of years of the chief statistical data for each country—M. Deloche also undertaking at first the editorship of this *Annuaire*. Besides this business, the Commission received numerous reports as to the progress with the scheme of international statistics (which for obvious reasons has been small as yet, although the work was agreed upon at St Petersburg in 1872), and also discussed various proposals for obtaining better statistics of agriculture, of the precious metals, of bourse operations, &c. An interesting report by M. Cheysson on the statistical diagrams at the exhibition was also read, the members of the Commission having previously devoted an afternoon to the formal inspection of these diagrams. It was finally agreed to meet in Rome in October next year, when the subject of the arrangements for the decennial census, which will be taken throughout Europe in 1880-81, will be specially discussed."

II.—Statistical Conferences at Paris.

FROM the *Statist* of 17th August, 1878:—

WE learn from the *Economiste Français* that subsequent to the meeting of the Permanent Commission of the International Statistical Congress, noticed by us a fortnight ago, conferences on

statistics were held under the auspices of the Paris Statistical Society. Representatives of various European nations were present, but we do not see the names of any Englishmen mentioned. At the first conference M. Leon Lebon, of Belgium, gave a paper on the history of the statistical annuals of various countries. Then followed a discussion on the best means of obtaining statistics of primary instruction, after which methods of determining the fertility of population were considered. At the second conference the principal subject dealt with was mortality, especially the difficult problem of infant mortality. At the third conference, the economic situation of various countries was considered. A memoir was presented by M. de Wredén, Professor at the University of St. Petersburg, on financial crises. Other memoirs were also presented. M. Louna, Secretary of the Paris Statistical Society, read a paper by M. Cheysson, on statistical method, in which a careful description of the method of diagrams was given. It will be seen that the subjects discussed belong chiefly to the higher branches of demographical knowledge.

III.—*Enteric Fever and Milk Supply.*

In January and February there was a remarkable outbreak of enteric fever at the west end of Glasgow, on which Dr. Russell, the Medical Officer of Health of Glasgow, has made a report of special scientific interest on account of the clearness with which the outbreak is traced to the supply of milk from a particular farmhouse, where there was a fever patient, and the milk was liable to become the medium of infection. The following are the principal passages of this report:—

“It will serve more than one useful purpose to give, in the following special report upon the outbreak of enteric fever in the west-end of Glasgow and the Burgh of Hillhead, the history of my investigation rather than merely the conclusions to which that investigation has led. I shall therefore detail, in their chronological order, the various stages of the inquiry, beginning with the facts which brought the outbreak under my notice.

“On Wednesday, 2nd January, a medical man called at the Sanitary Office to request the removal to hospital of two servant maids suffering from enteric fever from a house in Berkeley Terrace. He was unable to account for their illness, and my officers were told at the house that the source of milk-supply was thought to be a cart—a statement which proved to be a mistake. I may remark, that in all cases of infectious disease in Glasgow this inquiry as to the milk-supply has for some years now been made, among others as to internal sewer connections, water-supply, &c.

“On Friday, 4th January, I received a private letter, stating that there were cases of enteric fever in Hillhead and in Woodlands Road; that the families affected were supplied with milk from

Morrison's dairy in Hillhead ; and that suspicion was entertained by the medical attendant that the milk might be the cause. I at once wrote to the Medical Officer of the Burgh of Hillhead informing him of this statement, and saying, that 'in similar circumstances, if the dairy were within my jurisdiction, I should make an inspection thereof and of the employés, and also an inquiry regarding the health of any farmers whose milk may be there retailed. I shall be obliged by your undertaking this inquiry, seeing the dairy is within your jurisdiction, and informing me of the result. I hear there are more cases than I mention similarly supplied.' I also issued a circular letter to thirteen of the leading west-end practitioners in these terms :—'I have become aware of the existence of an unusual number of cases of enteric fever in the west-end, chiefly about the west-end park district and along Woodlands Road. It would greatly facilitate my inquiries into the same if you would kindly send me a memorandum of any cases you may be attending, with any information you may possess as to the milk-supply or other possible cause. The source of any information you may give will, of course, be strictly confidential.' On making inquiry at Belvidere Hospital, by private wire, I found that the two servants referred to were able to state that the family in which they served was supplied with milk by Morrison. To expedite matters it seemed judicious to institute independent inquiries as to this dairy ; and in this way I had ascertained in the course of the same day (1) that there was no sickness on Morrison's premises ; (2) that besides the produce of their own cows, that dairy retailed milk which was obtained directly from one farm near Maryhill, and indirectly from three milk-dealers, one of whom was the firm of Semple and Wilson, whose premises are immediately north of Morrison's. The names and addresses of all the farmers whose milk was passed on by these three dealers to this dairy were obtained, except one, which Messrs. Semple and Wilson subsequently added. They were eight in number, as originally given, and were situated at East Kilpatrick, Old Kilpatrick, Campsie, Cadder, Symington, Thankerton, and Lesmahagow. The farm which was added to the list on Monday, 7th January, was between Stonehouse and Strathaven. I also learned that a child of Mr. Semple's had been ailing since the 2nd, but was supposed by the medical attendant to be suffering from simple derangement of the stomach. Mr. Semple had himself been suffering from a cold since the end of December.

"In the course of Saturday, 5th January, sufficient information was gathered from various sources to warrant me in writing again to the Medical Officer in Hillhead in these terms :—'Since my letter to you of yesterday, relative to Morrison's dairy, I have collected a deal of information from medical men and by other means which leaves no doubt in my mind (1) that a smart outbreak of enteric fever prevails both in the west-end of Glasgow and in Hillhead ; and (2) that all the families affected are supplied by Morrison. [Here the addresses of some Hillhead cases were given.] I trust you will use every endeavour (1) to ascertain that the milk is not now exposed ; and (2) to discover the history of the circumstances

in which the dairy and all its tributaries have been for the past six weeks or two months. I shall call at your house on Monday at 10 A.M. to learn about it.' Still desirous of expediting the discovery of the source of infection, I consulted with Mr. Macleod, and instituted an inspection of the farms enumerated above, by Mr. Walker, the Food Inspector of the department. I adopted this course, as the most speedy and satisfactory, for two reasons—(1) because of the difficulty, amounting sometimes to impossibility, of ascertaining the local authority within whose district farms are situated; and (2) because of my former experience of the delay and the otherwise unsatisfactory results of such investigations when conducted by correspondence. On Saturday evening I learned that the medical attendant on Mr. Semple's child suspected that the disease from which it suffered was enteric fever, and on Sunday I thought it my duty to inform the lady who manages Mr. Morrison's dairy of the circumstance, the result of which information was that no more milk was received from Messrs. Semple and Wilson. *Therefore, Sunday, 6th January, was the last day on which milk from this source was distributed to Mr. Morrison's customers.*

"On Monday, 7th January, I called on the Medical Officer of Hillhead according to promise, and found that he had been confined to bed since the 5th, but that he had inspected the dairies on the 4th, and had arranged that Provost Cowen, Bailie Alexander, and the burgh sanitary inspector should meet him that morning for the purpose of consultation. Unfortunately, he was still too ill to engage in business, but I had the pleasure of meeting those gentlemen, and we proceeded to inspect the dairies together. I found Mr. Morrison's to be well contrived, in admirable order, and in all respects a model of what a dairy should be. There had been no sickness about it, excepting a severe attack of bronchitis in the latter end of November, without the slightest symptom or suspicion of fever. Of this I am satisfied from the statement so frankly made by the medical attendant. There was at the time of the visit no one ailing in any degree. Messrs. Semple and Wilson's dairy cannot be similarly praised, as a slight description will show. From Smith Street you step down into the milk-house, the roof of which is low and the air decidedly close and heavy. By a door on the left access is obtained through a small apartment, used for business, to the centre of the dwelling-house, and by a door right opposite the street entrance you pass into the washing-house, where a boiler is provided for washing clothes, and another for scalding milk cans, &c., beside it. The doors into this milk-house are scarcely ever shut. Milk was standing about in it in open vessels. Besides the doors, there is in the partition dividing off the washing-house an oblong aperture covered with wire gauze, and almost on a level with the tops of the boilers. The flags are badly jointed and sloppy. The child was still ailing, but the private attendant was said to be less inclined to pronounce it fever.

"Next morning I again met the burgh sanitary inspector by appointment on Semple and Wilson's premises. The child had now been certified, and was about to be removed to the Joint Burghs

Hospital. I saw it for the first time, and the disease was well-marked enteric fever. It lay in a room used as a sleeping and dining room, in and out of which dairymaids and others passed freely. However, all risk of infection originating within this dairy was terminated by the removal of the child. From the evidence which had been accumulating in my hands from day to day, derived from house-to-house visitation within my own district, and from the medical gentlemen who were kind enough to answer my circular, regarding both Glasgow and Hillhead, it became apparent that the problem before us was somewhat complicated. The first cases of fever in both districts had occurred in the middle of December, and although they were principally among Morrison's customers, an increasing number was reported among the customers of Semple and Wilson, but chiefly in Hillhead. Reviewing the whole facts, the source of infection to which they pointed was one which passed through Semple and Wilson to Morrison, and yet which was divided between the two dairies. The evidence of this was, that the infection had attacked the customers of both, but the milk went only one way—viz., from Semple and Wilson to Morrison. The child had only been infected contemporaneously with the customers, which showed that a portion of the milk which went to Morrison had been retained in the supply retailed by Semple and Wilson, and partaken of by the child. The area of investigation was therefore now narrowed (1) to the milk from those farms which Semple and Wilson as middlemen or agents passed on to Morrison; and (2) to farms, part of whose milk was retained by Semple and Wilson, and part handed over to Morrison.

“Working out this restricted area during Wednesday, the food inspector of this department visited farms at Symington, Thankerton, and Lesmahagow, and on Thursday, 10th January, went to Stonehouse. In the forenoon of that day, Mr. Simpson, sanitary inspector of Hillhead, called to show me a letter dated 5th January, sent by Messrs. Semple and Wilson to a farmer near Stonehouse, informing him of the prevalence of fever in their vicinity, and ‘that several of the medical staff are loud in their assertions that it has been mainly spread by the milk supplied,’ concluding, ‘you will be kind enough to let us know by return whether all your people are in good health. We believe the sanitary authorities are making independent inquiries.’ The original was returned with this certificate written on the fly-leaf, dated 8th January, and signed by a medical gentleman—‘In answer to the above communication, I have to state that Mr. ——— has been suffering from mild remittent fever for three weeks. A boy has been laid up with the same complaint within the last week.’ I advised Mr. Simpson to take immediate steps to stop the milk from this farm. He had not long left the office when our inspector wired his discovery to me, and on his return in the evening, after hearing his report, I wired to the farmer to send no more of his milk into Glasgow, and that I would visit and inspect his premises next day. *The last of this milk was distributed to Messrs. Semple and Wilson's customers on Thursday, 10th January.*

“On the 11th I inspected the premises in question. They stand

in a most picturesque situation at a bend of the Avon. The house and all the outhouses are *en suite*. From the kitchen you pass into the byre, beside the door at the far end of which, and against the wall, stands a privy. From the middle you enter on the right into the washing-house, where also the milk tins are scalded,* and through it into the milk-house. The water supply is derived from two sources, from both of which we took samples, which were sent to Dr. Wallace for analysis. The water which is chiefly used is dipped from a well in the court or 'close,' beside a puddle which communicates with a built drain running below the washing-house to the back, and thence by a trench to the Avon. On the inspector's visit the servant lad was lying in the kitchen bed, but he had in the interval been removed upstairs. He had the characteristic eruption of enteric fever, and was smartly ill. The son referred to in the doctor's certificate is convalescent from the same disease. He sickened on 1st December, and was first seen by the doctor on the 9th. A servant girl sickened on the 20th December, and went at once to her parent's house in the village of Stonehouse, where I saw her in company with her medical attendant. She is convalescent from the same disease. The boy sickened on 27th December. The work of the dairy was carried on by the persons who attended to the patients, and on inquiring how they disposed of their excreta, I was informed that the chamber-pots were emptied into 'the grip,' which it may be well to explain is the channel, running on each side of the central passage, provided in byres for the reception of the cattle droppings. It is scarcely necessary to say that this was a capital forcing bed, from its heat and moisture, for the enteric contagia. I pointed out the impropriety of such a proceeding, gave some advice as to the general arrangements, and came to an agreement that no milk should be sent off the premises until the boy had recovered or was removed. I learned that a message from Messrs. Semple and Wilson had been received almost at the same time as mine, ordering it to be discontinued.

"The average quantity of milk delivered daily from this farm to Messrs. Semple and Wilson was 25 gallons. Of this, 8 gallons sweet milk were at once passed on to Morrison, and the remaining 17 gallons were distributed by Messrs. Semple and Wilson among their wholesale and retail customers. They have a branch in Elderslie Street and another in Springburn (to which, however, none of the suspected milk was sent, and in connection with which there has been no fever), and also supply various subsidiary milk shops in the Anderston district. It is evident, therefore, that it will be most difficult, if not impossible, to trace the full effects of this impure supply, from the wide area over which from time to time in the course of their daily distribution it may have been sent, and from the indirectness of the ultimate channels. The circumstances which directed public attention first to Morrison's dairy are these: their customers being numerous, all supplied direct, and of a class whose sickness attracts immediate attention.

"From first to last, we have ascertained the existence among the consumers of this milk in Glasgow proper of 72 cases of enteric fever. Of these, the first 3 sickened on 15th December; and there-

after, in the week ending 22nd December, 9; ending 29th December, 22; ending 5th January, 30; ending 12th January, 7; and the last case sickened on 20th January.

"Another distinct area of infection is amongst the students of the University, who, on the 21st December, were dispersed over the country for their Christmas holidays. There are now some absentees from illness, and I have obtained the names of sixteen of these who have already been discovered to have enteric fever. Of that small number three died—at Kilwinning, at Langloan, and in Islay. The refreshment room in the University was supplied with milk by Semple and Wilson. It was largely patronised by the students, and those men are known to have partaken of the milk.

"There are some facts in reference to the nature and distribution of the contagia or infecting elements of such diseases as enteric fever which have been established by experiment, and a clear understanding of which will enable you better to reconcile all the features of this outbreak with the theory and circumstances of milk-infection. Whatever theory we adopt as to contagious, or zymotic diseases, whether germ theory or glandular, on one point all epidemiologists are agreed—that the infecting element is a solid. It is 'particulate,' having dimensions, and therefore is subject to the same laws as visible, tangible bodies in its distribution through air or water or on the surface of solids. Therefore, if these particles be in air we have to conceive of them as being transported by currents, as settling down in stagnant air, as damped and drowned down by moisture, &c. If they be in a fluid, according to the specific gravity and viscosity of the fluid will they tend to float or to sink, and like all bodies which can only be mechanically suspended in fluids, not dissolved, their distribution will be irregular, so that in equal measures dipped from the bulk of the fluid you cannot get equal numbers of these particles, and consequently not equal infecting power. Now, it has been proved by experiment with infecting material, say of lymph, or some ferment, as that of putrefaction, that if you introduce it in two different but carefully measured proportions into two quantities of fluid, so that one shall be weaker than the other; if you then divide each into equal parts, and test the relative infecting power of each part in an appropriate way, you will find that a larger number of the portions of the strong solution will infect than of the weak, though in neither case will all succeed if both be below a certain degree of dilution. Keep before your mind the idea of floating particles unequally disseminated and you will at once understand how this is. The analogy between these facts demonstrated experimentally and the facts of milk-epidemics is perfect. Let us take a few illustrations from the present case:—

"In Hill Street, Garnethill, there are 7 families supplied with suspected milk, of whom 3 are infected, and 181 supplied otherwise, not one of whom is infected.

"In Berkeley Terrace there are 7 families supplied with suspected milk, of whom 1 is infected, and 31 otherwise supplied, not one of whom is infected.

"In Royal Terrace there is 1 family supplied with suspected

milk, which is infected, and 28 otherwise supplied, not one of whom is infected.

"In Lynedoch Crescent there are 2 families supplied with suspected milk, of whom 1 is infected, and 14 otherwise supplied, not one of whom is infected.

"In Park Street, East, there are 5 families supplied with suspected milk, of whom 1 is infected, and 8 otherwise supplied, not one of whom is infected.

"In Park Circus there are 9 families supplied with suspected milk, of whom 2 are infected, and 20 otherwise supplied, not one of whom is infected.

"In Park Gardens 2 families are supplied with suspected milk, 1 of whom is infected, and 4 supplied otherwise, not one of whom is infected.

"In Park Quadrant, 6 families are supplied with suspected milk, of whom 1 is infected, and 12 are otherwise supplied, not one of whom is infected.

"In Park Terrace Lane, 2 families are supplied with suspected milk, of whom 1 is infected, and 9 are otherwise supplied, not one of whom is infected.

"In West-End Park Street (in occupied houses), 38 families are supplied with suspected milk, of whom 3 are infected, and 95 are otherwise supplied, not one of whom is infected.

"In Woodlands Terrace there are 6 families supplied with suspected milk, of whom 3 are infected, and 15 supplied otherwise, not one of whom is infected.

"In Clairmont Terrace there are 7 families supplied with suspected milk, of whom 3 are infected, and 5 supplied otherwise, not one of whom is infected.

"In Woodside Crescent there are 4 families supplied with suspected milk, 1 of whom is infected, and 13 supplied otherwise, not one of whom is infected.

"In Woodside Terrace, 4 families are supplied with suspected milk, and 1 is infected, and 17 are otherwise supplied, not one of whom is infected.

"In Newton Place, 5 families are supplied with suspected milk, and 2 are infected, and 22 otherwise supplied, not one of whom is infected.

"In Newton Terrace, 3 families are supplied with suspected milk, and 1 is infected, and 15 are otherwise supplied, not one of whom is infected.

"In Bath Street, West, of Campbell Street (in occupied houses), 14 families are supplied with suspected milk, of whom 3 are infected, and 168 are otherwise supplied, of whom only one is infected.

"So that in a house-to-house visitation embracing all the occupied houses in those streets, out of 779 families 122 were supplied with suspected milk, of whom 29 were infected, and 657 were otherwise supplied, of whom only 1 was infected.

"Now, in the experiments referred to, the infecting material was known to be present, and the phenomena were as described. In the facts detailed above we recognise the same phenomena in the

distribution of the infecting elements of enteric fever. We have the milk charged with those elements at Stonehouse, and distributed among those west-end families. We have what chemists call a blank experiment, i.e., one without the foreign ingredient, to show that the original substance is pure, made by the distribution of milk from other sources in the same streets, at the same time, to families in every way alike. In the former case a variable proportion of families is infected; in the latter not one is infected. The only difference between the experiment made in the laboratory and that made in the west-end of Glasgow is that we have not actually seen contagious particles put into the milk. But there is an end to all progress in science, and to all belief in the consistency of nature's processes, if we cannot, from the recognition of phenomena, repeatedly observed to follow an experimental act, reason back to that act in circumstances where the phenomena first present themselves to our observation, and where in the nature of the case no exactly similar experiment can be made. It seems to me, however, that had there been any doubt as to the nature of the disease on that farm at Stonehouse, no more conclusive experiment could have been planned than that which has been unintentionally carried out among the inhabitants of Glasgow and Hillhead.

"At the date of the original report (14th January) no authentic information could be got as to the extent of the epidemic within the Burgh of Hillhead, although I suggested to the Commissioners, at my interview on 7th January, the importance of a house-to-house visitation to ascertain this. On the 22nd I wrote to the Provost of Hillhead referring to the statement regarding Glasgow, which had then been some time published, and pointing out 'how important it would be to have the great gap filled up by similar facts regarding that burgh which otherwise will continue to be apparent in the history of the outbreak.' He was good enough to call next day, and undertook to have a statement made up. On the 8th February this was received. Captain Anderson also informed me of a small development of the outbreak in Kelvinside. The following is therefore a complete summary of the extent of the epidemic, which it will be observed invaded the areas of three local authorities :—

	Cases.	Deaths.
In Glasgow proper.....	72	5
„ Hillhead Burgh	71	7
„ Kelvinside	7	1
Among University Students.....	16	3
Total	166	16

"The dates of sickening of the Hillhead cases are not stated, but I understand they perfectly coincide with the Glasgow section in their commencement and cessation. It will be observed that the

death-rate over all was 9·6 per cent., but it was much heavier in the trans-Kelvin districts than in Glasgow. This is found on closer analysis to depend upon the channel through which the milk reached the consumer. Of the total 166 persons infected, exactly one-half were customers of Morrison and one-half of Semple and Wilson; but while 5 of the former died, 11 of the latter died. The death-rate among those of Morrison's customers who were infected was therefore 6 per cent. and among Semple and Wilson's customers 13·2 per cent. The explanation of this remarkable difference, no doubt, is to be sought in some difference in the manner of conducting the business, and it is probably this: While Morrison's various milks were sent out so that no one milk could reach the same consumer day after day, or without more or less admixture with some other milk, Semple and Wilson's milks for the most part went out either in bulk or so that they could rarely get commingled. It is also to be remembered that the freshest portion of the Stonehouse milk (the morning milk) went to Morrison, while the portion milked the previous evening was retained by Semple and Wilson. These circumstances tended to give the customers of the latter a larger proportion of the enteric poison in the same volume of the milk, as well as to subject them to repeated doses."

IV.—*Notices of New Books.*

AMONG works on economical subjects which have lately appeared, the most important, measured by its extent, is "The Economy of Consumption: an omitted chapter in Political Economy." By Robert Scott Moffat (London, 1878). It contains more than 660 pages, and judging from the title page, one would suppose that the author has singled out a particular branch of the science, previously overlooked by economists, and has enlarged upon this branch. The production and distribution of wealth have been treated in innumerable books. "But it has been common to relegate consumption to domestic economy." Mr. Moffat, however, holds (p. 9), that consumption has its general laws, and that these are intimately associated with, and mutually act upon, and are acted on by, the laws of production and distribution. The omission of any due treatment of such laws of consumption has contributed, he thinks, to emasculate the science, and to give to its discussions an air of unreality. He shows how Adam Smith and J. S. Mill have thus erred in narrowing the scope of economics. Had Mr. Moffat proceeded to carry out his apparent intention of supplying this omitted chapter, by writing as he proposed, a work "of observation and experience" upon the consumption of wealth, he would undoubtedly have conferred a great benefit upon economic science. But in the long chapters which follow we do not notice any very special reference to consumption. The subjects of these chapters are the Theory of Capital, Demand, Competition, the Growth and Limits of Capital, the Growth and Limits of Production, Industrial

Organisation, Trades Unions. In short, Mr. Moffat relapses into a very long discussion of the ordinary topics of economists, and the theory of consumption and its laws seem to be after all omitted.

The fourth and fifth divisions of the work treat of what the author calls a Time Policy. What special reference this bears to the economy of consumption is again unapparent. The time policy is recommended in place of the policy of strikes, and Mr. Moffat thinks so highly of his views that he has lately reprinted this part of the book separately. The time policy is recommended on the ground that it will give the labourer "the assurance that he is at all times paid the full value for his labour" (p. 520). The great difficulty, however, is to discover what the author means by a time policy. He probably knows so well, that he has omitted to clear up the misty ideas of the reader. Apparently Mr. Moffat means by a time policy the varying of the length of the day's work so as to adjust supply to demand (p. 530). But if so it is only an elaborate way of reproducing the false doctrine of over-production, which economists had better leave to Mr. Morley to advocate. And it is impossible to see how this time policy will supersede a strike policy, when we remember that many strikes arise from differences of opinion between masters and men as to the duration of labour. Inasmuch, too, as buildings and machinery are useless while workmen are playing, the interests of the capitalists must always be antagonistic in the long run to those who wish to limit production. On p. 601 we note the following sentence: "Time, as has been shown, is the only incorruptible commodity, the only possession not subject to depreciation, in which savings effected by the economy of labour can ultimately be stored." How that can be an incorruptible possession which is constantly fleeting, or how savings are to be *stored up in time*, we are unable to comprehend. This is by no means the only incomprehensible sentence in this very crude work.

It would be a matter of regret if the value of Mr. David Cunningham's treatise on the "Conditions of Social Well-being," were overlooked or underestimated. The author is a civil engineer, and his dealings with the working classes seem to have led him, as in the well known case of Mr. Brassey, to study the social condition of those in his employment. He appreciates, as few do, the stores of valuable information now yearly published by the English Government in the reports of the consuls and diplomatic agents concerning the industrial classes of foreign countries. Mr. Cunningham's work is further described as "inquiries into the material and moral position of the populations of Europe and America, with particular reference to those of Great Britain and Ireland;" and even if the book were regarded, as we have seen it described, as a mere compilation of statistical facts and well selected extracts, it would be a valuable addition to a statistical library. But our impression is that when carefully studied Mr. Cunningham's views will be found to display much insight into the springs of social action. The chapters, no doubt, are very unequal in merit, and it was hardly possible that in the first chapter, extending only over twenty-seven pages, he should adequately treat, even in outline,

such a wide subject as "The Historical Development of Social Well-being." But when Mr. Cunningham is concerned with concrete facts—with the condition and efficiency of workmen, with co-operation, wages, conciliation, piecework, providence, protection, land tenure, &c., his conclusions appear to be carefully matured and well founded. His fourth chapter, on the "Obstacles to Social Well-being in Great Britain and Ireland," especially demands attention; and his remarks concerning Ireland are of a disheartening tendency. It would seem that, after all the emigration and the legislation of the last thirty years, the economic position of the Irish is thoroughly bad. The decrease in almost every kind of agricultural produce, except potatoes, mangold-wurzel, cabbage, and hay, the doubling of the cost of poor-law maintenance between 1859 and 1874, the high birth-rate in the country districts, the continuance of evictions, and the inconsiderable amount of compensation granted under Mr. Gladstone's Act, are all of them statistical facts of bad complexion. It is sad to find that Mr. Cunningham comes to the conclusion (p. 88), that as regards dependence upon the highly fluctuating potato crop, the Irish of the present day are in a position just as dangerous as that which they occupied before the famine of 1847, and that the situation is one very materially lower than that of any other civilised people. We do not see how Mr. Cunningham's facts can be controverted, and they tend to one inevitable conclusion. There seems to be but one measure which can produce a social reform in Ireland, and that is, *fixity of land tenure* for the cultivator, or in fact, a radical reform of the land laws. The statist may be forced to such a conclusion, even if, as a politician, he feels the hopelessness of the position.

The Paris Exposition has naturally called forth a crop of statistical publications; but we may especially mention the following, because they are partially the work of the eminent French economist, M. A. Froust de Fontpertuis, who writes in conjunction with M. Clovis Lamarre. They are, "*L'Inde Britannique et l'Exposition de 1878*," and similarly, "*La Chine et le Japon, et l'Exposition de 1878*" (Paris, 1878). Each book commences with a brief statistical account of the Empire in question, followed by an *aperçu général* of its history. The corresponding department of the Exposition is succinctly described in a manner exhibiting alike the grace of a finished French writer, combined with the comprehensive knowledge of an accomplished economist. It is singular to observe, indeed, how intimately acquainted the authors are with the details of Oriental industry. Naturally they depend to a considerable extent on English authorities, especially as regards British India; but it is very valuable to have the opinion of French economists concerning matters with which they are not so personally interested as the English. There is no difficulty in gathering that the authors approve of the transfer of the Government of India from that "worst of masters" (p. 4), a privileged company, to an English Secretary of State. But they unequivocally condemn the mode in which a large part of the Indian revenue is raised. More than a quarter, they say (p. 6), "proceeds from two detestable sources, the traffic in a poisonous drug; and the monopoly of a substance

of the first necessity" (opium and salt). Again, they remark (p. 252), "The (Indian) Government has allowed several specimens of Indian tobacco to figure in its collection, and these have a very good appearance; but it has doubtless thought it very useless to show here the opiums of which it superintends the culture, and of which the sale brings in, good years with bad years, 200,000,000 frs. This is a very pretty figure, but, although money *ne sente jamais mauvais*, this money comes, nevertheless, from an impure source, for it represents the progressive degradation and stupefaction of thousands and thousands of human creatures." It is difficult to suggest a satisfactory answer to these remarks and those which follow.

Mr. Rowland Hamilton's new book treats chiefly of currency topics, and is entitled, "Money and Value: an Inquiry into the Means and Ends of Economic Production" (London, 1878). The author undertakes to explain something of the real nature of what goes on in the city, and to direct popular attention from forms to the realities which lie behind them. Starting from primary ideas concerning the uses of metallic money, Mr. Hamilton has gradually reasoned his way towards the extended uses of money, the substitutes for it, conditional ownership, credit and banking. The treatment of such subjects appears to be usually sound, if not novel; but even when the results are, as they must of course commonly be, old, Mr. Hamilton's way of presenting them seems to put them in a new light. A reader cannot go through the work without deriving advantage.

V.—Additions to the Library.

AMONG the numerous donations to the Society's library during the last quarter, a list of which follows, some are deserving of especial notice.

First may be mentioned, "*Cenni Monografici sui Singoli Servizi: dipendenti dal Ministero dei Lavori pubblici, compilati in occasione della esposizione Universale di Parigi, 1878*," of which we are told "c'est une collection de monographies des différents services, en douze volumes, et qui a obtenu le grand prix." This work is in large folio, and contains numerous charts, diagrams, and tables. It is altogether a magnificent production, and is arranged in the following order:—(1) *Relazione Générale*; (2) *Strade Ordinarie (Nazionali e Provinciali sussidiate)*; (3) *Strade Ordinarie (Provinciali e Comunali)*; (4) *Strade Ferrate*; (5) *Fiumi*; (6) *Navigazione Interna*; (7) *Consorzi Idraulici*; (8) *Bonificazioni*; (9) *Porti*; (10) *Edilità*; (11) *Poste*; (12) *Telegrafi*.

Annuario Statistico Italiano, anno I, 1878, is a volume in two parts, intended to be the first of a series, and corresponds in some measure to the "Statistical Abstract," published by the Board of Trade. The table of contents indicates particulars relating to the

following subjects:—Topography and Hydrography; Meteorology; Population; Army; Navy; Telegraphs; Post Office; Roads—Highways; Railways; Finance—State; Ecclesiastical Board; Finance—Communal and Provincial; Instruction—Public and Private; Justice—Civil and Criminal; Prisons; Charities; Shipping; Foreign Commerce; Live Stock and Agriculture; Banks and Credit Establishments; Emigration; Elections—Administrative and Political; Prices of Merchandise; besides which an introduction of 175 pages contains some industrial statistics and abstract tables, showing the growth and progress of the Italian kingdom from 1861-76.

"*Annuaire Statistique de la France, Première Année, 1878.*" A volume in imperial 8vo. of 590 pp., issued by the Minister of Agriculture and Commerce. This volume, like the previous one, is the first of a new series, and contains a *résumé* of statistics from each branch of the administration. The following is a general enumeration of the contents: Territory and Population; Movement of the Population; Religion; Justice—Criminal, Civil, and Commercial; Prisons and Penitentiaries; Poor Relief; Provident Institutions; Public Instruction; Fine Arts; Elections; Army Recruiting; Effective and Sanitary State of the Army; Agriculture; Horse Breeding; Industry; Professions and Salaries; Sea Fisheries; Means of Communication; Commerce and Navigation; Tolls; Finance and Taxes; Casualties; Assurance; Algeria; French Colonies and Possessions.

"*Statistique Générale de la Belgique. Exposé de la Situation du Royaume de 1861 à 1875, 1^{er} Fasc.*" A volume in imperial 8vo., issued by the Minister of the Interior. This is an extension of a previous volume, which embraced the years 1861-70 only; a number of new statistical facts, however, having arisen soon after its publication, owing to various alterations in the laws, it was thought advisable to extend it to the fifteen years 1861-75. The new volume is in two parts (1), Geographical and (2) Political. Part 1 contains particulars relating to geographical position and growth of territory; orographical, hydrographical and geological constitution; natural indigenous products; territorial divisions; density of the population, and climate. Part 2 refers to the constitution and civil and political laws of Belgium.

"*Reports of the Department of Agriculture, Washington, U.S.A.,*" annual and monthly, 1847-76, in all thirty-one vols., and a "*Centennial Album of Agricultural Statistics,*" compiled by J. R. Dodge, Esq., Statistician, United States Department of Agriculture, the whole forming "a contribution to the Centennial Exhibition at Philadelphia." The album (an oblong folio) contains Four maps, showing the—proportion of improved lands to farm areas; prices of farm labour; comparative production and distribution of milch cows; comparative area in fruit. Six charts indicating the—grand areas and extent of cultivation; estimated production of cereals in 1875; comparative yield of corn and wheat; number of farm animals; comparative value of horses and cows; statistics of industrial education. Thirteen diagrams, showing the—corn and wheat production; average of the period 1870-74; product of corn *per capita*; product of wheat *per capita*; area of wheat; corn and

wheat exports of fifty years 1825-75 ; sugar supply of twenty-five years, with comparison of quantity of native and foreign ; cotton crops of ten years ; effect of quantity on value ; aggregate value of the principal crops ; average of 1866-74 ; aggregate product of corn, wheat, oats and potatoes ; effect of quantity on value ; wages of farm labour, 1866-75 ; immigration of seven years, comparison of its sources ; comparative area of public land ; aggregate value of farm animals ; average of 1866-74 ;—in addition to which, are numerous illustrations of industrial colleges, and several type specimens of breeds of farm animals.

Additions to the Library during the Quarter ended 30th September, 1878.

Donations.	By whom Presented.
AUSTRIA AND HUNGARY—	
Statistisches Jahrbuch für 1875, Hefte 3 und 4 ; für 1876, Heft 9 ; und für 1877, Heft 1. 8vo. Wien, 1878	K. K. Statistischen Central—Commission
<i>Commission permanente du Congrès International de Statistique—</i>	
Compte Rendu des conférences de Buda-pest en 1876. 65 pp., 4to. Budapest, 1878	Dr. Mouat, F.R.C.S., &c.
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Exposé relatif à la Statistique des opérations de Bourse, par J. Poznanski. 39 pp., 4to. Buda-pest, 1878.....	"
Ouvrages du Bureau Communal de Statistique de la Ville de Budapest, fondé en 1870. Rédigés par J. Körösi. 12mo. Budapest, 1878	"
BELGIUM. Exposé de la situation du Royaume, de 1861 à 1875, 1 ^{er} fasc. 112 pp., imp. 8vo. Bruxelles, 1878 }	Le Ministre de l'Intérieur
CHINA. Imperial Maritime Customs II. Special series No. 2. Medical Reports for the half-year ended 30th September, 1877. Fourteenth Issue. 94 pp., plates and diagrams, 4to. Shanghai, 1878	R. Hart, Esq., Shanghai
FRANCE—	
Annuaire Statistique de la France. 1 ^{re} année 1878. xxvi et 590 pp., imp. 8vo. Paris, 1878	Ministère de l'Agriculture et du Commerce
Préfecture du Département de la Seine. Rapport présenté par M. Marié Davy, Directeur de l'Observatoire de Montsouris. 30 pp., plate, 8vo. Paris, 1878	Dr. Mouat, F.R.C.S., &c.
Statistique Centrale des Chemins de Fer Français, situation au 31 Décembre, 1876. 339 pp., map, 4to. Paris, 1877	"
Carte des Chemins de Fer Français, 1878	"
La Tempérance. Bulletin de la Société Française de Tempérance, année 1877. Nos. 3 et 4. 6 maps, 8vo. Paris	"

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Revue Bibliographique Universelle	Le Rédacteur
Partie Littéraire. Vol. xxii, No. 6, et vol. xxiii, Nos. 1 to 3.	
Partie Technique. Vol. xxiv. Nos. 5—9, 8vo. Paris, 1878.	
Société de Statistique de Paris, Journal de la. Vol. xix. No. 7 et 9, imp. 8vo. Paris, 1878	La Société
GERMANY—	
Monatshefte zur Statistik des Deutschen Reichs. Band xxx, Hefte 4—7 (April—July). 4to. Berlin 1878	Kaiserlichen Statistischen Amt. Berlin
Die Zukunft Socialistische Revue. 1 ^{er} Jahrgang. Hefte 1—24. October, 1877—September, 1878	Der Herausgeber
Bavaria. Definitive Uebersicht (1) der Gewerbebetriebe mit Umtriebsmaschinen (motoren) nebst Nachweisung der Zahl, Art, Pferdestärken der letzteren, U. S. W. (2) Der Wichtigsten Arbeitsmaschinen und Vorrichtungen nach der Aufnahme, vom 1 December, 1875. 179 pp., 8vo.	Koenigl. Bayer, Statistisches Bureau
Hamburg. Statistik des Hamburgischen Staats bearbeitet vom Statistischen Bureau der Deputation für direkte Steuern. Heft 9, 182 pp., 4to. Hamburg, 1878	Das Statistische Bureau
Prussia—Preussische Statistik. xxxx. Die definitiven ergebnisse der Gewerbezahlung, vom 1 December, 1875. Theil 1, 4to. Berlin, 1878	Königl. Preuss. Statistisches Bureau
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JOURNAL OF THE STATISTICAL SOCIETY,

DECEMBER, 1878.

The OPENING ADDRESS of G. J. SHAW-LEFEVRE, ESQ., M.P., PRESIDENT of the STATISTICAL SOCIETY, delivered on TUESDAY, the 19th November, 1878.

IN my address last year I ventured to give a philosophical explanation of the use of statistics. I contended that statistics in themselves could not be considered as a science, apart from the subject matter in which they deal; that the object of science being to discover the laws which govern the sequence of events, statistics are often the most available method of discovering these laws, or of testing the theories, which have been deduced from certain data; but that when a law has been evolved from the facts by the use of these implements, it takes its place in the science to which the subject matter relates, be the science sociology, political economy, chemistry, or meteorology, or any other branch of science for which statistics can be used. My views in this respect were affirmed in very striking language in the most able address of Dr. Ingram, to the Economic Section of the British Association, at its last meeting at Dublin. In holding this view of the relation of statistics to science, I must not be considered as depreciating the services of those who have claimed for statistics the position of a separate science. The claim, I think, was first put forward by Quetelet, and has been followed by a school of successors. It was Quetelet's great merit that he first thoroughly appreciated the value of the statistical method. "The object of statistical research is," he said, "to discover the causes which exercise an influence on the facts of social life, while determining their degree of intensity; nothing can better conduce to this end than observations made in the mass from which accidental influences are eliminated;" and again he said, "Observations made in the mass robbed of their contingent qualities, acquire a scientific character which permits one to observe constant causes, or to appreciate the perturbation to which they are subject." It was to observations made in this way, and with this object, that he devoted his life, and whether we think that he founded a special branch of science, or only elaborated a method of scientific research, applicable to other sciences, we must

all agree in the value of his services; and probably their greatest value consisted in his investigation of vital statistics, which have ever since been one of the most important subjects of study to statisticians, and from which enormous benefits have resulted to mankind.

In the case of statistics I must again remind the Society, that although the method may be special, the use which is to be made of them is common to all scientific investigation, and must be subject to the rules of logic. The common use made of them is by comparing facts at different times and places, and deducing from their agreement or difference the causes which connect them; and just as the experimental philosopher in physics when making his experiment, takes care that no other or external cause shall interfere with that which he is investigating, so the observer of social facts must in selecting them for comparison, be careful not to assume in the first instance that other causes, than those which he is investigating, have not intervened to affect the final result. The danger and difficulty of all reasoning of this kind lies in this, that it is impossible wholly to separate one cause and its effect from other causes and other effects. Every event in the condition of man is the result not of one but of many causes, and though here and there we may be able to neglect all but one most important cause, yet we should never forget that other causes are at work, often in an adverse direction to those we are investigating, often in the same direction.

It is from the failure to keep this constantly in mind, that the great abuse of the statistical method so frequently takes place, an abuse which often brings the method into contempt. I ventured last year to give several illustrations of this abuse, and many others might be adduced. I do not propose, however, to-night to proceed further with the philosophical investigation as to the method, but to make some use of it myself, subject I fear, to others detecting the same kind of abuse which I deprecate. Nor do I propose to launch upon any of the more abstruse subjects which are open to us.

The ordinary use of statistics is somewhat more humble and utilitarian than the discovery of the broader and more permanent laws of human progress. Their most common, necessary, and feasible use is for estimating and appreciating the actual present condition of a community, and its progress during the past few years, and for making a forecast of the immediate future therefrom. For this purpose the greater part of our official statistics, showing the condition of the country under various heads, year by year and month by month, are principally though not wholly useful. And certainly there has seldom been a period when

it was more important than at the present, to understand the leading phenomena of the commercial position of this country. A great proportion of the papers read before this Society in the past session, had reference to these matters, showing the very great interest taken in them; and the interval which has elapsed since then has rather increased than diminished the significance of the facts contained in them, and makes it the more important that a sound opinion should be formed as to their bearing, both as regards the past and the future. Although, therefore, I briefly alluded to these papers and summed up their general result in my observations at the annual dinner of the Society in July last, I shall ask permission again to advert to the subject in my present address.

It must, I fear, be admitted that the trade of this country, or at least some of its most important branches, are in a most depressed condition; that large numbers of merchants and manufacturers are making no profits; that wages in these trades have fallen to a very low point; that large bodies of workmen in the manufacturing districts are idle or working only half time, and that there is much suffering in such districts. If we are to believe many authorities, the prospects of the future were never more gloomy; our foreign trade is deserting us; we are feeding upon our own resources, and gradually and surely reducing them; the balance of trade against us grows larger year by year; we are on the brink of a commercial abyss; other countries, by maintaining high duties on our goods, have succeeded in their hopes, have reared industries destined to extinguish ours; and we are now reaping the folly of conceding free trade to others which is denied to ourselves.

For the purpose of testing these opinions, I shall venture to call attention to the progress made by the country during the past decade—since the year 1867. A decade is a convenient interval; all the more so because recent investigations into the past have tended to show that there are cycles in commercial affairs, corresponding with decades of years, and that in each decade we may expect to find at the one climax a period of great activity and profit, and at the other a corresponding period of depression and loss. There are those who with Mr. Jevons, believe that some physical explanation may be found for these cycles, that they are intimately connected with periods of good and bad seasons for food production, and that these in their turn are dependent on the phenomena known as sun-spots.

I will not, however, venture to enter upon this subject. I think Mr. Jevons will admit that the theory is in no more than a nebulous state at present, and that it requires a good deal more of investigation to decide whether it can be resolved into vapour or fact. I

cannot, however, resist the conclusion that these periods of activity and over-trading, depression and loss, come in cycles of about ten years, and by looking back over the past ten years, we include a period which embraces the whole of one of these cycles. Certainly this is the fact with the past ten years. It has been eminently a decade of inflation and depression. It began as it has ended, in great complaints, in universal gloom, and in low prices and small profits, and in the interval there was a period of extraordinary activity and profit, which has not been surpassed or even equalled in the present century.

The year 1868 followed upon a time when there had been a crash of bubble companies, causing an enormous loss to the community, and throwing out of employ a vast number of labouring men. Pauperism greatly increased, and trading capital was fearfully depreciated. I find in a report of a committee of the Manchester Chamber of Commerce the following description of the year 1869:—"The extreme depression of trade has resulted in an extent of disasters, both in the amount of property involved and in respect of the hardship and ruin entailed on manufactures, almost without parallel in the history of our commerce. In this year alone upwards of eighty spinners and manufacturers in this district failed, independently of those who compounded with their creditors unknown to the general public; while those whose wealth enabled them to avoid ruin, were left with crippled means and greatly depreciated property. Where mill property had to change hands, it is no exaggeration to say that such property fell to a third, in some cases to a fourth, of its former value, and was even at times unsaleable. Many millowners, whom a life of industry had placed in apparently affluent circumstances, were driven to seek for subsistence in subordinate situations, and even in emigration. Destitution among the operatives in some localities caused an enormous advance in the poor rates, and in order to avoid liability to taxation in unworked factories, the machinery of many was cleared out and even sold for old metal."

The state of things in the East of London was truly deplorable. An enormous stimulus had in previous years been given to ship-building on the Thames by the creation of several companies. The number of workmen employed in this trade was rapidly increased from 11,830 in 1860 to 20,880 in 1864. In 1866-67 came the crash of most of these companies, and in 1869 the number of men employed fell to 3,190. Pauperism rapidly increased.

In the autumn and winter of 1869 trade was so much complained of that there occurred a recrudescence of the old theories of protection under the guise of a demand for reciprocity, of which we now again hear a good deal. Even from Lancashire itself arose a

demand upon the Government of the day to revise our commercial treaties in the spirit of reciprocity. The Chamber of Commerce of Huddersfield memorialised the Government to the following effect:—

“That during late years the export of every description of British goods on the continent has perceptibly diminished owing to the increase of manufactories in different parts thereof, fitted up in many instances with the most improved English machinery, directed in its working by skilled hands from England, and assisted by the free export of British coal. From all which it has resulted that instead of being purchasers of English woollen goods in any quantity, different countries in Europe have become large buyers of wool in the English market for the manufacture of similar goods on the continent, with some of which, owing to the cheaper labour of the continent, these foreign manufacturers can undersell English producers, not only on the continent, but also in the United Kingdom.”

In the session of 1870 these complaints of bad trade and of increased pauperism, had their expression in two motions in the House of Commons; the one to the effect that in “order to arrest the increase in pauperism and to relieve the distressed condition of the working classes, it is expedient that measures be adopted for facilitating the emigration of poor families to British colonies.” It was moved by Sir R. Torrens, and supported by several members of the present Government, and not a few of the liberal members for metropolitan constituencies; it aimed at assistance to emigration out of State funds rather than from local rates. The speeches in support of the proposition were filled with lugubrious complaints of the state of trade; the distress was represented to be almost without parallel; the principle of *laissez faire* was denounced or sneered at. The motion was resisted by the Government and defeated, but a substantial section of the House supported it. The other motion was for a committee of inquiry into the commercial treaty with France, moved for by Mr. Birley, one of the members for Manchester, and supported on the ground that the treaty was defective and unequal in not securing reciprocity; that debate also was full of complaints of bad trade, and of the hardships British exporters experienced. The motion was defeated, but as in the other case, received a fair amount of support from those who sat opposite to the then Government. I have quoted these motions because they show how near a country may be to a period of unexampled activity and prosperity, without apparently any one being aware of what was coming. It is not to be supposed that the movers and supporters of these resolutions could have expected a speedy reaction to the evils they complained of, and even in the speeches of the opponents

to them, one can find no expectations of immediate relief. I shall also be able to show from a consideration of the general statistics of the period, that even in that period of depression the country as a whole must have been steadily progressing in wealth, and that the evils complained of must have been local and partial only.

The Franco-German war was concluded in the early part of 1871, and the peace led to a speedy revival of trade; the demands for the renewal of railways and other commercial plant in Germany, and for raising generally the condition of things in France, the renewed confidence in the future, combined with the enormous speculation in railways in the United States in inducing a demand for iron altogether unprecedented in commercial history; and iron and coal were speedily run up to famine prices.

In the years 1871 to 1874 trade in this country and elsewhere in the world was unprecedently great and profitable. 1872 was the culminating point, but 1873 and 1874 were scarcely less profitable. The price of coal and iron in this country was raised beyond measure, and wages rose in proportion. Roaring profits were made, and it resulted that enormous amounts of capital were invested in our leading manufactures, in iron works, in opening new collieries, in shipbuilding, in cotton manufactures, and other concerns. It may be doubted, however, when one looks back at the period, whether it was one of quite such universal prosperity to the whole of the community. Coal rose to three times its value; this alone amounted to a tax on the general community equal to between 50 to 70 millions a-year. Many other articles of consumption rose rapidly in price. Vast numbers of persons in the country who had no share in the special prosperity of the manufacturing districts, all persons living upon fixed incomes, all trades such as farmers, whose profits were independent of the commercial inflation, and vast bodies of labourers, suffered from the rise of price of all articles of prime necessity; and even many leading industries soon began to suffer from the tax which the increased price of coal inflicted on them. The disturbance in the labour market caused by the difficulty of readjusting wages, when considerable rises took place, claimed because of the great rise in the manufactured articles and the enormous profits, and then again by the fall of wages when the reverse action took place, was the cause of endless trouble.

It must be here remarked that the same phenomena were occurring both on the continent and in the United States. In Germany, the close of the war and the French indemnity led to an immense expansion of trade, to the creation of vast numbers of industrial enterprises, and to speculation and inflation of the most exaggerated character. In the United States the demand for iron

rails to furnish the great extension of railways, promoted by most unwise concessions of land by Congress, caused an enormous rise in the price of iron, and induced on the one hand an unprecedented importation from England, and on the other hand a great diversion of capital into iron works in the States themselves. In 1870 the actual make of iron in the United States was 1,865,000 tons; in three years the producing power was increased to 5,439,000 tons; and the importations rose from 300,000 tons of iron to 1,185,000 tons in 1871, and 1,224,000 in 1872. In 1873 there were symptoms of a crash which overtook these inflated trades in the following year, and in 1875-77 no fewer than eighty-four railway companies, with 7,700 miles of line, and with a capital stock of 420 million of dollars, were foreclosed and sold, and proceedings commenced with the same object against fifty-four other railways with 5,400 miles of rail. One-half the ironworks were suspended for want of employment, and the importation of rails from England fell from 561,000 tons in 1871 to 18,258 tons in 1875. Inflation in other trades was followed by similar reaction, and for the first time in their commercial history, we hear of a vast army of unemployed labourers in the United States gradually sinking into pauperism. In 1877 it was stated that no less than 1,250,000 artisans and labourers were out of employ.

In England the same reaction was observed, though fortunately in a very much less degree and with very much less suffering to the working classes. The expansion and inflation of the iron trade and coal trade was followed in 1875-76 by severe depression; prices fell to less than their former level before the great rise. The depression here has been aggravated by three successive years of indifferent harvest in England, by the famines in India and China, and by the war in the East or the fear of even more extended war. The three bad harvests of 1875-77 have now been followed by a harvest decidedly above the average as regards corn, and of a most abundant character as regards all other agricultural produce. The Indian famine districts have been relieved by a fair season. Improvement is being effected in the United States, where whole armies of labourers have again been directed from the depressed and over-stimulated industries in the north to the cultivation of land in the far west. Peace between Turkey and Russia has renewed the supply of corn from the Black Sea. And although trade is still everywhere depressed, and profits and wages are very low, it is a depression marked rather by plenty than by want. For at this moment all the articles of prime necessity for consumption and manufactures are plentiful and cheap. Wheat stands at 39s. per quarter as compared with 57s. this time last year, and is lower, with the exception of one year, than it has been for twenty years.

Coal, which in 1870, before the great rise, was 12*s.* 6*d.* per ton at the pit's mouth and in 1873 was 32*s.* 6*d.* per ton, is now reduced to 9*s.* per ton. The best Staffordshire bar-iron, which in 1870 was 6*l.* 10*s.* per ton, and in 1873 15*l.* per ton, is now worth only 5*l.* 10*s.* Cotton is 25 per cent. less than in 1874. Sugar is 15 per cent. less than in 1869. American salt beef is 10 per cent. less, and European salt pork 20 per cent. less than in 1869. Freights are lower than at any time during the last ten years; and steamers which were constructed for the emigrant trade are now mainly employed in bringing over fat cattle from the United States, to the great benefit of meat consumers.

These low prices are of inestimable benefit to a great mass of consumers in this country; but we hear far more of the complaints of producers and holders than of the rejoicings of the consumers. From many quarters we again hear of demands for legislative interference, of complaints of the failure of free trade, of demand for reciprocity, a fungus growth similar to that I have already described as taking place in 1869-70, the seeds of which errors are always in certain soil, but which only appear above ground in seasons of commercial decay and loss. Abroad, and especially in Germany, where the same phenomena are observed, and wages have fallen even more than with us, we hear of the same complaints; foreign manufacturers attribute their losses to their markets being flooded by low priced English goods, the result of over production in this country, though statistics show that importations have fallen off, and everywhere there is a recrudescence of protectionist ideas, and a distinct movement towards higher tariffs and further commercial restriction and seclusion.

Having thus briefly reviewed the commercial fluctuations of the past ten years, let us for a moment turn to the statistics of the period, and apply their test to the general progress of the country as a whole. We have already seen that the period is about equally divided between good and bad seasons; commencing with grave depression, it culminated in 1871-73 in great prosperity, and descended again in 1876-78 to extreme depression, with low prices and plenty. Taking, however, the period as a whole, I think it cannot be doubted for a moment, that it represents the greatest advance in wealth and prosperity which this country has ever experienced. If we compare the present condition in 1878 with that of 1868, both of them periods of depression, leaving out of consideration the great expansion of 1871-73, and if we regard the growth of wealth, or the condition of the whole labouring class or apply any test which we can think of, the result is the same, that an unprecedented advance has been made. If we take the income tax as the measure of progress, we find that its aggregate assess-

ment (which includes many incomes incapable of rise, such as fixed incomes derived from English State funds, salaries, pensions, &c., and rents of land which increase very slowly) has increased during the last ten years by 36 per cent., as compared with $26\frac{1}{2}$ per cent. in the previous decade, and 16 per cent. in the decade 1847 to 1857. If we regard only the profits of trade assessed under Schedule D, the increase is still more remarkable, viz., from 173 millions to 271 millions, or 98 millions, an increase of 58 per cent. That this is not a mere temporary increase due to fluctuating incomes, liable to disappear in bad times, is shown by the fact that the realised personal property, assessed to the legacy duty, has increased from 73 millions in 1857 to 104 millions in 1877. When the advance is examined year by year, it appears that it has been much more steady than could have been supposed on the general statement of the condition of trade, and of the alternate periods of inflation and depression already explained. There has been no year in which there has not been considerable increase, though the rate has varied somewhat with the condition of trade.

For the nine years ending April, 1876, the increase in each successive year in millions on the total assessment of the income tax has been as follows:—

7, 4, 10, 21, 17, 31, 30, 29, 8,

and for Schedule D only, it has been—

—1, +1, 5, 11, 13, 26, 21, 17, 5.

If we capitalise the income tax, or rather estimate from it the realised value of the property of the country at the commencement and end of the decade, as Mr. Giffen has done in his most able paper read before us last session, we find that the increase of wealth of the country in the decade is 2,400 millions, or 240 millions a-year; and even if we make some reduction upon this, as some of us are perhaps inclined to do, the increase is still enormous and unprecedented. If we take special industries and trades we find almost without exception a great advance of production in 1877 as compared with 1867, the same continuous progress, marked by a great stride in 1872-73, but still continuous or sustained throughout nearly the whole period.

The production of coal advanced from 104 million tons in 1867 to 134 millions in 1877, or 28 per cent.

The increase was for each year as follows in millions of tons:—

1 + 4 + 3 + 7 + 6 + 4 — 2 + 6 + 2 + 1.

The production of pig-iron increased from 4,761,000 tons in 1867 to 6,608,000 tons in 1877, or 40 per cent. There was a great

increase between the years 1869-72; since then the production has been stationary.

Shipbuilding has increased from 269,000 tons in 1867 to 433,000 tons in 1877, or 61 per cent.; or taking the average of three years, which is a fairer test in a trade, where there is much fluctuation, from 313,000 tons to 404,000 tons, or 29 per cent. The progress has been continuously progressive, with the exception of the year 1874, when the tonnage built was 521,000 or 100,000 tons more than in any other year. The total tonnage built in the decade has been 4,136,000 tons, or equal to two-thirds of the total tonnage of the United Kingdom, employed in the home and foreign trade. The entries and clearances of British and foreign vessels with cargoes, to and from foreign countries, have increased from 28 millions to 43 millions, or 54 per cent. Here again the progress has been continuous, and it is not possible to detect in the rate any fluctuation caused by good or bad trade.

The capital invested in railways in the United Kingdom has increased from 502 millions in 1867 to 673 millions in 1877, or 34 per cent.; and here again the increase has been continuous, apparently independent of trade fluctuations; the increase in millions for the successive years has been 9, 7, 11, 23, 16, 19, 21, 20, 28, 16.

The receipts per mile of railways open have increased during the same interval from 2,771*l.* in 1867 to 3,548*l.* in 1877, or 20 per cent. The increase was very great in 1872 and 1873, but has been since maintained, and even increased. The number of passengers per mile has increased from 20,193 to 32,268, or 60 per cent., and the increase has been considerable in each year, though at double the average rate in the years 1871 and 1872.

The net import trade of the United Kingdom has increased from 230 million pounds in 1867, to 341 millions in 1877, or 111 millions, or 48 per cent., or taking the average of three years ending 1867 and 1877, by 94 million pounds or 42 per cent.

The export trade of British produce has increased on the same basis of comparison from 178 million pounds to 207 million pounds, or 18 per cent. The increase of net imports has been progressive throughout the decade, two years only showing a very slight decrease over the previous years. The increase of exports was progressive till the year 1872, since which it has somewhat declined. In comparing, however, the subsequent years, the fall of prices must be taken into account, and with this correction, it may be said that our exports have remained stationary during the last four years. The growing difference between exports and imports will be adverted to later.

It may be safely then summed up as the result of these figures, that the aggregate industries of the country have increased in the

decade from 30 to 50 per cent., that the realised wealth has increased by nearly 40 per cent., and that the progress in this increase has been much more steady and continuous than the current and popular notions of great periods of inflation and depression would lead us to suppose. Let us see what has been the effect of this increase on the labouring classes of the country.

The population of Great Britain has increased in the past decade by 3,465,000 persons, or nearly 700,000 families, 10 per cent. of the population in 1867. We have found it possible not only to feed, clothe and house, this addition of $3\frac{1}{2}$ million of persons, a population equal to that of a new Scotland, and to employ 700,000 additional heads of families, but also to employ many more of the people already existing in the country. Pauperism has in fact greatly diminished in actual numbers, and still more relatively to the population. It slightly increased between the years 1867 and 1871, from thence rapidly decreased till 1877, and rose again very slightly at the commencement of the present year. The decrease for England and Wales was from 158,000 adult ablebodied paupers, and a total of 958,000 of all paupers, to 97,000, and 741,000 respectively, a decrease of 40 per cent. of the one, and 21 per cent. of the other; taking into consideration the increase of population, the pauperism of all kinds has decreased from 4.4 per cent. of the population, to 3.0 per cent. of the population, or by one-fourth; and in Scotland from 3.8 per cent., to 2.6 per cent. In Ireland, where pauperism is only 1 per cent. of the population, there appears to have been an increase.

Even at the present moment, when trade in the manufacturing districts is undoubtedly very bad, the net increase of pauperism in the country as compared with last year is very slight. There has been a decrease of pauperism in the metropolis and in the south of England, and a somewhat greater increase in the north.

The emigration returns show the same results. The net emigration has diminished from 153,000 in 1870 (the first year for which we have returns of the immigrants) to 14,000 in 1877. The decrease has been progressive, but the largest drop was in the year 1874. Doubtless this decrease has been in great part due to the distress among the labouring classes in the United States, but it is most satisfactory when taken in connection with the great reduction of pauperism in this country.

The savings bank returns show the same story. There has been an increase in the deposits from 46,300,000*l.* in 1867 to 73,000,000*l.* in 1877, an increase of 58 per cent., and the increase has been remarkably steady, at the rate of about 2,500,000*l.* per annum; the year 1872 showing an increase of double that amount.

With respect to wages, there was a considerable increase in every

trade and employment during the years 1871-73, averaging even in those trades not subject to great prosperity about 20 per cent. In some trades which profited most from the expansion of trade, and where prices and profits were very high, the increase was far greater—more than 100 per cent., and the subsequent decrease has been proportionally great, and wages in the coal and iron trades are now lower than in 1870; but this is not the case with the general average throughout the country. Wages have in many cases not fallen at all since 1874, or where they have fallen it has been to a point very much in advance of 1868. It must never be forgotten that in estimating wages we must have regard to the prices of the leading articles of consumption—of wheat, sugar, coal, clothing, &c., and estimated in the purchasing power of money, wages are probably higher now, save in the trades where they have risen and again fallen in proportion to the profits, than in any of the past ten years. In those trades where the claim has been made and sustained by the workmen to share in the profits, and to vary their wages with the price of the article produced, it is only reasonable that wages should fall in proportion to the fall of the product; in such trades the present low rates cannot be considered as more than temporary, they must rise again with returning profits.

In a return before me I have the average price of pig iron in Scotland, and the average wages of the workmen for each year since 1869. The average price of pig iron rose from 60*s.* in 1869 to 102*s.* in 1872, 117*s.* in 1873; then fell to 65*s.* in 1875, and to 53*s.* in 1878. The wages rose from 3*s.* 9*d.* a-day in 1869 to 7*s.* 3*d.* in 1872, and 8*s.* 6*d.* in 1873; then fell to 4*s.* 6*d.* in 1876 and 2*s.* 9*d.* in 1878. The average price for the ten years has been 77*s.* per ton, and the average wage 5*s.* 2*d.* a-day; in both cases remunerative. In fact, no trade, where great variations take place in price, in profit and wages, has much right to complain, if on the average of good and bad years the rate of profit to the manufacturers and of wages to the men has been remunerative. Where such is the case, both manufacturers and workmen are bound to provide in years of prosperity against years of depression. I have before me the profits made by an iron and coal company in Yorkshire, for ten years, which I believe may be taken as a fair sample of many others. In 1869 the profits were 4 per cent. on the capital; they rose gradually to 13 per cent. in 1872, 47 per cent. in 1873, 37 per cent. in 1874, then fell to 18 per cent. in 1875, 8 per cent. in 1876, 5 per cent. in 1877, and zero in 1878, but for the ten years the average has been 15 per cent., which I apprehend is a remunerative profit, and quite sufficient to attract capital to the trade.

Taking then a general view of the statistics for the past ten years, whether as regards the realised property of the country,

or the wages and general condition of the labouring classes, it cannot, I think, be doubted that irrespective of the great expansion in particular trades in 1871-73, which has now subsided, there has been great advance in all respects; wealth has advanced in a proportion far beyond that of the population; a greater proportion of labourers are employed; and prices being very low, a great proportion of the labouring classes, and all the vast class of people who live upon fixed incomes, are far better off now than ten years ago. The figures show also conclusively that the progress has been in every respect more steady and continuous than would be credited if we listened to all that is commonly said of the effects of depression of trade. I do not find that Pharaoh's dream has been realised, or that the lean years have swallowed up the fat years. Taking the lean and fat years together the country has done well. It cannot be supposed that the whole of the great increase of wealth in the decade, estimated by Mr. Giffen at 2,400 millions, and at the rate therefore of 240 millions a-year, took place in the periods of great prosperity between 1870 and 1874. The profits in these years were probably much greater than in others, but the profits and savings of the country in the years of depression must also have been great; and as a proportion of the realised wealth of the country consists of the savings of those who are living upon fixed incomes, and of the profits of those whose profits do not vary much in times of inflation, it stands to reason that such persons are better able to save when prices are low than when they are high.

There remains the remarkable phenomenon that the difference in the value of our imports and exports, always large, has assumed within the last three years enormous proportions, giving rise anew to old theories about the balance of trade, and alarming those who believe it possible that foreign countries are prepared to send us goods without a return for them, or that this country is gradually eating up its resources. The excess in the value of our imports over that of our exports has increased from the average of 58 millions in 1867-69, to 118 millions in 1875-77, and reached the enormous sum of 142 millions in 1877. Making however an addition of 10 per cent. to the value of our exports, in respect of freight, insurance and profit, and a deduction of 5 per cent. from the value of our imports in respect of freight and other charges, as Mr. Newmarch has explained is necessary, the difference is considerably reduced; for the years 1863 to 1870, this difference averaged 25 millions; in 1871 it fell to 4 millions; in 1872 there was an excess value of exports of 8 millions; in 1873 the excess of imports was 12 millions; in 1874 26 millions; in 1875 47 millions; in 1876 77 millions; and 1877 97 millions; and for ten months of the

current year it is 74 millions. Comparing the three years of great commercial activity, 1871-73, with the three last years, the total difference in value for the first period was 5 millions, or nearly 2 millions a-year, and for the last period 217 millions, or 72 millions a-year.

The explanation is to be found, as shown in Mr. Giffen's paper of our last session, in the enormous investments of this country abroad. The income of these investments rose from about 28 millions a-year in 1867 to 65 millions a-year in 1877. In the interval a sum of nearly 600 millions must have been invested either in foreign State funds or in railways and other industrial enterprises. According to Mr. Hyde Clarke, about 340 millions have been lent by the British public to foreign Governments, of which the interest of about one-third is now in default ; and it is not unreasonable to suppose that nearly as much more has been invested in railways, mines, and other industrial enterprises abroad. Upon this state of facts then the excess of our imports in ordinary times becomes intelligible. Between the years 1870 and 1873 we were investing enormously abroad, and the balance between imports and exports was therefore redressed ; during the last three years these investments have been greatly reduced ; our foreign creditors therefore must pay us the interest due in goods or gold, and this interest, together with the charges of the Indian Government in England on account of the army, pensions, salaries and stores, quite make up the investments during the past three years.*

The most striking feature then of the past ten years has been the growth of these foreign investments, and the increasing indebtedness of foreign countries to the British investor, an increase represented in interest from 28 millions to 65 millions. In other words, before foreign countries take a pound's worth of goods from us, they must pay us 65 million pounds' worth of their own produce. On the average of ten years, we are reinvesting about this sum in each year, and are therefore continually increasing the indebtedness of other countries. When these reinvestments cease, our foreign export trade languishes. When we lend largely abroad, our export trade proportionally increases ; and thus, on the one hand, the vast magnitude of the indebtedness of foreign countries is a certain impediment to our export trade in periods of depression, on the other hand, in very prosperous times, the savings and profits of this country are so great, that they can find no investment at home, but spread over the whole world, fertilising fresh fields of commerce, making fresh railways, or supplying foreign Govern-

* In the Appendix, Tables A and B, I have endeavoured to illustrate this difference of the values of exports and imports, and to show approximately the amount of investments in foreign securities in each of the last ten years.

ments with the means of war and waste, and temporarily creating a great demand for British exports.

Looking back then at the figures and trade of the past ten years, there is no cause whatever for anxiety arising from the great discrepancy between the value of our exports and imports. The difference merely shows that there is a great falling off in the investment of our capital and savings abroad, and that is the result in part of diminished profits at home, and in part of increased objections to foreign investments caused mainly by political considerations. There is equally no reason to fear for our foreign trade from the competition of others. Other countries have suffered, and are suffering proportionally more than this country, and from the same causes. The condition of trade, and the state of the labouring classes has been, and is far worse, in Germany than here. In the United States the depression has been far more wide spread, and the suffering greater. It has however been stayed there by a great diversion of labour to other employments. That England has not suffered more is due to its sound commercial system, its free trade principles, and its enormous wealth.

The figures I have quoted show I think conclusively that the general progress of the country is much more independent of the periods of activity and depression in certain trades than is generally supposed; inflation of price is not so generally a cause of prosperity, or a subject of rejoicing, and depression of trade and low prices not so generally a subject for regret as might be supposed. The country as a whole makes progress, and these violent disturbances show more on the surface than in the depth.

So far as the present depression is due to bad harvests, or to famines in India and China, its causes are already past; we have had in the present year a harvest above the average, and nature has again been productive in the East. The economic causes are over; there remain only the political causes, the fear of war, the uncertainty of the future in Europe and the East, the great and ever increasing military expenditure, not only in this country, but in every part of the continent; but to explain the effect of these or to predict their mitigation, would be to enter upon political considerations beyond the scope of this Society.

Apart from these, one can see nothing in the present economic condition of this or other countries to justify the long continuance of the present depression; and no reason to suppose that we may not be as near to a period of prosperous reaction as in 1868-69, when a similar state of things was complained of.

At the present moment all the chief products of the soil, whether for consumption or manufacture, are most plentiful. The process of adjustment between them cannot be long or difficult.

There cannot long be suffering as the result of plenty; nor can there be over production, so long as such a large number of persons are without those products which they have no greater wish than to consume. It may be doubted whether in any of the principal manufactures or industries of the country, there is over production in the sense that a greater amount of capital is invested in them than is capable of obtaining remuneration when the temporary causes of the depression are removed. Assuming, however, that it be so, and that the great profits of 1870-73 attracted too much capital to certain trades, and stimulated too much the power of production, the evil is purely local, and must be of short duration; its bad effects are confined to the trades concerned; meanwhile the public gain by the reduced prices. Whether such trades are entitled to any general sympathy must depend on the average profits they have received over a term of years, including periods of inflation as well as depression.

Nor are such periods of depression wholly without advantage even to the trades immediately concerned. They are periods when invention is rife, when every effort is made to economise and to effect improvements from which the trade and the public will ultimately benefit. When great profits are being made, there is no time for improvements and little motive for them; necessity compels attention to them in the dull time of contraction. The effect of depression is also to close and compel the break up of a great deal of obsolete machinery which can no longer bear its part in the competition, and much of which has long been paid for out of previous profits. It also closes the business of many who have traded on insufficient capital. It is notorious that the firms which succumb at such times are, with very rare exceptions, deserving of their fate, and the commercial world and the particular trades themselves are the better and clearer for their suppression. There is no reason to believe that the present crisis is any exception, or that the process of clearance of unsound traders has as yet been carried too far. On the other hand, the facts and figures I have quoted show that there is good reason for those who can bear a depression to hope for reaction and the renewed profit it will bring. It may well be doubted whether a return to the inflated prices and exaggerated profits of 1871-73 is desirable in the interest either of the particular trades concerned, or of the public, but we may fairly hope for an improvement of trade to such an extent that a better adjustment may be made of the parts to the whole; with renewed plenty the difficulty of adjustment cannot be great; and probably all that is required for it is confidence in the maintenance of peace.

Beyond, however, the prospective improvement of trade and the removal of the existing depression, it may be open to us to

look even further, and to speculate upon the future development of trade, and the prospect of maintaining what is called our commercial supremacy. It has been argued by one, for whose opinion I have always had the greatest respect and regard, that we must in this country look forward to the day when our supremacy must give way to the gigantic trade of the United States, as certainly as did that of Holland in the past century to our own.

The subject is one eminently proper for discussion and speculation, and not to be sneered at or suppressed as many seem inclined to do. That the aggregate trade and manufactures of the United States will at no distant period greatly surpass our own, cannot for a moment be doubted by any one who looks at the conditions of the two countries. The one has already a population of forty-five millions against thirty-six of the other country. The territory of the States is fifty times larger than that of the United Kingdom; twenty years hence its population will have doubled and be closely approaching 100 millions. Can any one suppose or hope that the population of this country will increase even by 30 per cent. in the interval? With 100 millions of people spread over some of the most productive territory in the world, teeming with coal and iron, there can be no doubt that the aggregate manufactures and commercial transactions of the United States will be infinitely larger than our own, and if the aggregate manufactures of a country spreading from the Atlantic to the Pacific, and from the Gulf of Mexico to the Canadian Lakes, can be put into comparison with those of our own small island, the United States will undoubtedly be in this respect superior in wealth and numbers. I do not, however, think that this is the true meaning of our commercial supremacy. It rather means that in this country the trade of the world tends to centre; that in its capital rather than at New York, San Francisco, Paris or Vienna, the transactions of the world are best settled; that on the whole, manufactures are carried on here more cheaply, and are transported to other parts of the world, which do not manufacture for themselves, more easily than from any other centre of manufacture. I see no reason to think that even when the United States are peopled by twice the population of this country, the conditions of this commercial superiority may not remain intact, though the volume of our manufactures may not be relatively so great.

The tendency in the United States is that the great centres of her manufactures, especially of iron, are being transferred further inland. In recent accounts I have read that iron is being manufactured more cheaply in Ohio and Alabama than in Pennsylvania and New York, and it is alleged that these last States are feeling severely the competition of those further inland, the more so as they

feel that with a rise in price they will again find the competition from England on their sea board. It may be that in the future the tendency will be still more in this direction. The cost of land transit is so heavy in proportion to that of water, that as the centre of gravity of the States is removed further westward and more inland, the centres of manufactures will follow, and to whatever extent this may be the case, the manufactures of the sea board States will suffer.

It seems to me that there is far more fear for the manufactures of Massachusetts than for those of England; and if this be so as regards the sea board States of America, far more will it be in respect of the trade with and supply of countries such as India and Australia, to which the distance from England gives an advantage to her manufactures as compared with those of the States. So far as we can now see, England has a commercial position superior both for manufacture and for supply. Our coal fields still promise a supply almost inexhaustible, and at a most reasonable price; our access to other markets is more convenient; our climate is admittedly far better suited to textile manufactures. These are advantages of which we cannot be deprived. Other advantages we have derived from our constitution and experience. An abundance of capital; an organised class of work people, the most steadily industrious of any in the world; a system of credit based on sound principles: the principles of free trade which give so much life and spring to our commerce. These are matters in which we may be followed, not surpassed. Probably the best security for our supremacy would be that other countries should continue to hamper their trade by foolish restrictions, in unnatural efforts to stimulate and foster them. So long as this is the case England must be the emporium of the world, the free port of nations, and the mart to which all transactions will converge. That England has gained enormously in this respect by her policy of Free Trade, cannot be doubted by one who considers the progress of her trade during the last thirty years and compares it with that of other countries; that this trade and the trade of the rest of the world would be largely increased by other countries adopting free trade can also not be doubted; but that persons should ask us now to reverse our policy and injure ourselves by reimposing duties on the products of others, under the influence of ideas based upon reciprocity, because these others are willing to injure themselves in the attempt to shut out their rivals, is the most wanton and insane proposal that can be conceived.

With free trade here and with restrictions in other countries, our supremacy of trade will be unquestionable and certain. With free trade in the United States, the struggle will be severe, but I

have no fear that even then we should hold our own; not indeed in the aggregate of our trade, or in the number of our manufactures, but in this—that here will centre the commercial transactions of the world, and that here on the whole manufactures of the leading commodities of the world will be produced most cheaply and transported to other markets most easily and reasonably.

I see no reason then for alarm either in the existing state of things, or in the outcome of the future as regards our trade, and what is called the supremacy of our commerce. There are, however, subjects for speculation, which may well interest economists and statesmen. What will be the effect upon this country, and especially upon Ireland, of a cessation of emigration? For the first time for nearly forty years emigration has almost ceased, and the check upon the increase of population which was effected by the enormous exodus of people, and which actually reduced the population of Ireland by nearly one-third, has been removed. Will England and Ireland be capable of supporting an enormous increase to their population? Will the next decade be equally successful as the past in supplying employment for the new population which will grow up amongst us?

Another subject for concern at the present time is the condition of the agricultural portion of our community. It has certainly been the least progressive and the least prosperous of our producing classes during the last ten years; and at the present time the farmers of that part of the country which produces corn are undoubtedly in a depressed condition. They have suffered from three years of successive bad seasons, and now that a harvest somewhat above the average has been vouchsafed, the price of wheat has fallen by nearly 30 per cent.

Mr. Caird, in his admirable treatise on the landed interest, has shown that there has been a considerable rise in the rent of land since 1857, amounting in England to 21 per cent., in Scotland to 26 per cent., and in Ireland to 6 per cent.; the total increase being 11 millions a-year, and the capitalised value of which is 331 millions. It is to be observed, however, that by far the greater part of this rise took place in the first decade. In England the increase between 1857 and 1867 was 5,300,000*l.*, and between 1867 and 1877 3,600,000*l.* In Scotland the increase in the first decade was 1 million, in the second decade *half-a-million*. In Ireland the increase in the first decade was about *half-a-million*, in the second decade the rent has remained stationary. It is probable also that the increase of rent has been mainly due to two elements, the one the rise in value of meat, the production of which is the main function of one half of the country; the other to the increased value given to remote agricultural districts by railways.

There is no evidence of any large expenditure of permanent capital in the soil securing an increased rent from it. The total sums spent on improvements by the land improvement companies, partly through the medium of State loans, and partly through borrowed money, has been only 15 *millions* in the past thirty years, and if we assume that private expenditure has been twice this amount, the total expenditure has not been more than 45 *millions*, or at the rate of $1\frac{1}{2}$ *millions* a-year, accounting at 5 *per cent.* for an increased rental of $1\frac{1}{2}$ *millions* due to improvements during the last twenty years. The remaining increase of rental therefore must be due to the other causes alluded to. There is no evidence adduced by Mr. Caird to show that the gross produce of the land has increased by any sensible amount during the same period. Improved methods of farming, or rather a better general average of farming, may have tended to increase the gross produce, but as against this, a considerable amount of land has been diverted from the growth of corn to pasture, and from such land there has been a reduction of two-thirds of the gross produce, though the net profit to the farmer may have been larger. At all events, there is no evidence of any considerable increase in the gross agricultural produce of the soil, though the price of meat has doubled. It results, therefore, that farmers have had on the one hand to pay higher rents, on the other, increased wages to their labourers; and those who have grown corn have not found the average prices better, while the crops during the past decade have been below the average. It is easy to understand then that the agricultural interest should at the present time be depressed, and that there should be threats of reduced rent, and of reduced wages.

These are remedies, however, which no one would wish to see carried out if they can be avoided; and the question is whether a remedy may not be found in improved production. Mr. Caird has quoted figures to show that the investment of capital, through the improvement companies, has on the average proved to be most profitable, giving a return far beyond the average interest on the money borrowed; and he has elsewhere told us that only one-fifth of the work of draining and other land improvement has been effected, and that there is room for an enormous outlay of capital upon it. Why then is this outlay withheld? And why are improvements effected so slowly? On the one hand we see hundreds of millions leaving this country for investment in foreign securities, many of which have proved to be most unfortunate speculations, on the other we have the land needing an enormous outlay of capital which would return a secure interest or profit, and which being spent in the country would not only employ our spare labour, but would return to it again in the shape of

demands for home productions. It is discreditable to the country that these opportunities of expending capital at home should be neglected. One of our first duties, therefore, should be to inquire into and remove the impediments to this outlay, whether they consist in difficulties of transfer of land, of expense in dealing with it by mortgage or otherwise, or in its being tied up in quantities beyond the means of, and without the motive to, its ostensible owners to deal with and expend capital on it, or in the insufficient security to tenants for the outlay of capital where it is not forthcoming from the owner. It is in this direction that a remedy may be found for the present ills of the farming class, rather than in a wild goose chase after protection, in the shape of reciprocity, to which they are encouraged by some of their advisers. In the coming decade it is not easy to see how the plant of our manufacturers can be increased as it has been in the past decade; but many millions a-year might easily and profitably be spent on land improvement, and would supply employment for a large increase of our population.

The subject, however, of our agricultural produce and the possibility of the economic employment of more labour on the land might well form the matter for a special paper and discussion before this Society. I will only conclude, that in what I have said to-night, I have exemplified to the best of my ability the work of the Society, for I have taken my facts to a great extent from the able papers read in our last session, papers which for research, lucidity, fairness, and philosophic inquiry, have never, I venture to think, been excelled. I have made use of them, I hope, in the same spirit. If in the forthcoming session as good use of our time is made as in the past, I feel no fear for the continued success of the Society, or that it will lose its present position as one of the learned societies, studying the conditions, progress, and habits of man—a study as truly scientific, I venture to think, as that of the habits of ants or apes. The study, however, of our own race is one in which we cannot hope to arrive at such certain and absolute conclusions, as in the study of these inferior beings. We can at best analyse some of the causes, and predict some of the results or tendencies which will mark their progress; but the time may come when in the advance of this science, the future may be more under our view and control than at present, and till then we must be content to believe with Pope that—

All nature is but art unknown to us;
 All chance, direction which we cannot see;
 All discord, harmony not understood;
 All partial evil, universal good.

APPENDIX.

TABLE A.—In Explanation of the Excess Value of Imports over Exports in each Year from 1865 to 1877, showing 1st (Cols. 1, 2, and 3), the Gross Amount of Imports as recorded in the Board of Trade Returns, the Value of Foreign and Colonial Goods Re-Exported, and the Net Imports being the Difference between these Two Amounts; 2nd (Col. 4), the Increase or Decrease of the Value of the Net Imports as Compared with the preceding Year; 3rd (Cols. 5 and 6), the Value of the Exports of British and Irish Produce as recorded in the Board of Trade Returns, with the Increase or Decrease on the preceding Year; 4th (Col. 7), the Difference in Value between the Net Imports, Col. 3, and the Exports of British and Irish Produce, Col. 5, being the apparent Excess of Imports over Exports according to the Board of Trade Returns; and 5th, the Calculated Real Excess of Imports over Exports (Col. 9) after Deducting from the Apparent Excess as stated in Col. 7, a Sum equal to Five per Cent. on the Imports, and Ten per Cent. on the Exports (Col. 8), which is assumed to be necessary to allow for Freights Earned, and for Imports as recorded being Valued at Port of Arrival, and Exports at the Port of Shipment.

[000,000's omitted.]

	Imports.				Exports.		Difference between Values of Exports and Imports.	Five per Cent. on Imports, 10 per Cent. on Exports.	Difference between Value of Imports and Exports, after Deducting 8 from 7.
	Total Value of Imports.	Value of Foreign Goods Re-Exported.	Net Imports, Difference between 1 and 3.	Increase or Decrease over Preceding Year.	Total Value of British Exports.	Increase or Decrease over Preceding Year.			
1865	271,	52,	219,	— 4,	166,	+ 6,	53,	34,	19,
'66	295,	50,	245,	+ 26,	189,	+ 23,	56,	37,	19,
'67	275,	45,	230,	— 15,	180,	— 9,	50,	35,	15,
'68	294,	48,	246,	+ 16,	179,	— 1,	67,	36,	31,
'69	295,	47,	248,	+ 2,	190,	+ 11,	58,	37,	21,
'70	303,	44,	259,	+ 11,	199,	+ 9,	60,	39,	21,
'71	331,	60,	271,	+ 12,	223,	+ 24,	48,	44,	4,
'72	354,	58,	296,	+ 25,	256,	+ 33,	40,	48,	— 8,
'73	371,	56,	315,	+ 19,	255,	— 1,	60,	48,	+ 12,
'74	370,	58,	312,	— 3,	239,	— 16,	76,	47,	26,
'75	373,	58,	315,	+ 3,	223,	— 16,	92,	45,	47,
'76	375,	56,	319,	+ 4,	200,	— 23,	119,	42,	77,
'77	394,	53,	341,	+ 23,	199,	— 1,	142,	45,	97,

Note.—It might be possible to render the table more minutely accurate in appearance by adding to the net imports the net imports of bullion in the period, &c., but this is considered unnecessary, as the table is only designed to show roughly and approximately the course of trade for the ten years.

TABLE B.—*In further Explanation of the Excess of Imports over Exports in each Year from 1865 to 1877, showing 1st (Col. 1), the Estimated Amount of Interest Due on British Capital Invested Abroad in Government and other Public Loans; 2nd (Col. 2), the Estimated Amount of Remittances on Account of the Indian Government for Home Expenses, and by Civil Servants Abroad, and the Remittances on Account of Trade Profits; 3rd (Col. 3), the Aggregate of the Interest Due and other Remittances as in Cols. 1 and 2; and 4th (Col. 5), the Difference between the Total in Col. 3 and the Calculated Real Excess of Imports over Exports as stated in the previous Table, Col. 9, and now repeated here in Col. 4; this Difference being Estimated to represent the Amount Annually Due to this Country which is not actually Brought Home, and which has therefore been Reinvested Abroad in each Year, the Total of the Column being the Estimated Amount of Investments Abroad between 1865 and 1877.*

[000,000's omitted.]

Year.	1 Estimated Interest due on British Capital Invested Abroad in Government and other Public Loans.	2 Estimated Remittances on Account of Indian Government for Home Expenses, by Military and Civil Servants Abroad, and on Account of Traders' Profits.	3 Total of Cols. 1 and 2.	4 Difference between Value of Net Imports and Exports, from Col. 9 in Table A.	5 Difference between Cols. 3 and 4, representing probable Amount of Investments in Foreign Securities.
	£	£	£	£	£
1865	28,	25,	53,	19,	34,*
'66	30,	25,	55,	19,	36,
'67	32,	26,	58,	15,	43,
'68	34,	28,	61,	31,	30,
'69	36,	28,	64,	21,	43,
'70	39,	28,	67,	21,	46,
'71	42,	31,	73,	4,	69,
'72	46,	31,	77,	— 8,	85,
'73	51,	31,	82,	+ 12,	70,
'74	56,	31,	87,	28,	61,
'75	60,	32,	92,	47,	45,
'76	63,	32,	94,	77,	17,
'77	65,†	32,	97,	97,	—
					579,

* It is assumed that these investments are made at 6 per cent.

† This amount nearly corresponds with the amount of 65,000,000*l.* at which Mr. Giffen in his paper "On the Accumulation of Capital," computed the interest on British capital invested in foreign securities.

Note.—There is a steady increase in the amounts in Col. 1 of this table, corresponding to the estimated increase of foreign investments as in Col. 5. The amounts in Col. 2 also increase through the increase of Indian remittances, &c.

TABLE C.—*Showing Increase or Decrease in Pauperism, Investments in Savings Banks, and other particulars in each of Last Ten Years.*

[000's omitted.]

	Pauperism.			Investments in Savings Banks, United Kingdom.	Net Emigration.	Production		Ship-building.
	England and Wales.	Scotland.	Ireland.			Of Coal.	Of Iron.	
1867.....				£		Tons.	Tons.	Tonnage
Total for year	958,	121,	69,	46,300,	—	104,500,	4,761,	260,
1868.....								
Increase }	+ 77,	+ 7,	+ 4,	+ 2,000,	—	— 1,360,	+ 209,	+ 45,
1869.....	+ 54,	—	+ 2,	+ 2,500,	—	+ 4,326,	+ 475,	+ 38,
'70.....	+ 40,	— 2,	— 1,	+ 2,000,	153,	+ 3,010,	+ 518,	— 12,
'71.....	+ 2,	— 3,	+ 1,	+ 2,800,	— 7,	+ 6,921,	+ 664,	+ 12,
'72.....	— 104,	— 6,	+ 1,	+ 3,000,	— 6,	+ 6,145,	+ 14,	+ 38,
'73.....	— 87,	— 6,	+ 4,	+ 2,700,	+ 2,	+ 3,519,	— 175,	— 22,
'74.....	— 61,	— 6,	—	+ 2,900,	— 63,	— 1,973,	— 575,	+ 151,
'75.....	— 14,	— 4,	+ 1,	+ 3,000,	— 33,	+ 6,144,	+ 374,	— 101,
'76.....	— 66,	— 3,	— 3,	+ 2,700,	— 30,	+ 1,477,	+ 190,	— 60,
'77.....	— 21,	— 2,	+ 1,	+ 2,700,	— 2,	+ 1,266,	+ 53,	+ 73,
'78.....	+ 14,	—	+ 7,	—	—	—	—	—
Total for last year in table }	742,	96,	85,	73,000,	14,	134,610,	6,608,	433,
Increase or decrease per cent. for decade }	— 22	— 21	+ 23	+ 58	— 82	+ 29	+ 39	+ 61,

[000,000's omitted.]

	Total Assessment of Income Tax.	Assessed Annual Value of Houses.	Assessed Profits, Schedule D.	British and Foreign Ships Entered with Cargoes.	Capital Invested in Railways.
1867.....	423,	72,	173,	28,	502,
'68.....					
Increase }	+ 7,	+ 6,	— 1,	+ 1,	+ 9,
1869.....	+ 4,	+ 1,	+ 2,	+ 1,	+ 7,
'70.....	+ 10,	+ 2,	+ 5,	+ 1,	+ 11,
'71.....	+ 21,	+ 4,	+ 11,	+ 4,	+ 23,
'72.....	+ 17,	+ 1,	+ 13,	+ 2,	+ 16,
'73.....	+ 31,	+ 2,	+ 26,	+ 1,	+ 19,
'74.....	+ 30,	+ 4,	+ 21,	+ 1,	+ 21,
'75.....	+ 29,	+ 1,	+ 17,	—	+ 20,
'76.....	+ 8,	+ 1,	+ 5,	+ 3,	+ 28,
'77*	—	—	—	+ 1,	16,
Total for last year in table }	579,	95,	271,	43,	673,
Increase or decrease per cent. for decade }	+ 37	+ 33	+ 57	+ 54	+ 34

* The great exemptions in respect of incomes under 150*l.*, conceded in 1877, make it impossible to compare the year 1877-78 with previous years.

REMARKS *on the* STATISTICAL USE *of the* ARITHMOMETER.

By PROFESSOR W. STANLEY JEVONS, F.R.S., &c.

[Made before the Statistical Society, 19th November, 1878.]

It seems desirable to draw the attention of statisticians to the great saving of time and mental labour, which may be effected by the use of the Arithmometer, or French calculating machine. There is no great novelty in this machine. In principle it is the same as the original arithmetical machine invented by Blaise Pascal,* at the age of 19 or 20, about the years 1642-45, and imitated by several later mechanicians. The Arithmometer too, as actually manufactured by the late M. Thomas, of Colmar, has been a good deal used by actuaries, engineers, and others. It was made known to many people at the Paris Exposition of 1867, and to many more at the recent Exposition. English astronomers are now just beginning to use it for the tedious computations continually going on in observatories. Yet mercantile men, statisticians, and the English public at large remain unaware of the immense saving of labour which may be derived from the expenditure of 16*l.* or 20*l.* upon this beautiful machine.

It is true that the machine is of little use except for simple multiplication and division. The work proceeds entirely by addition and subtraction, which, when repeated time after time, constitute multiplication and division. But there is seldom any saving of time by employing the machine to perform simple addition or subtraction, because a computer of very moderate skill accomplishes this work rapidly on paper, and the transfer of the numbers from paper to the machine would occupy a good deal of time. The machine may be used also to extract square and cube roots; but it only does so by going through all the steps of the ordinary arithmetical processes, which are lengthy, and when not done on paper, liable to blunders. For these and various other operations, logarithms would be more advantageous.

Nevertheless, the most common and troublesome operations of the computer consist in multiplication and division, and it is in this work that the machine can render incalculable service. A long sum can be put on the machine in ten seconds, and then a few turns of the handle give the product or quotient almost infallibly correct, and to as many places of figures as can possibly be required. The work for which the statistician will find the machine most useful, is that of drawing percentages or ratios. There is little or no significance in any statistical number, except as compared with some other similar number, and in almost all cases that

* "*Œuvres Complètes de Blaise Pascal*," vol. iii, pp. 185—208, &c. Paris, 1864.

comparison should be made by calculating the ratio of one to the other. If then a statistical table is to be really intelligible and useful, every column of absolute numbers should be accompanied by a column of ratios. This accordingly is done to a certain extent in the Census Reports, the publications of the Registrar General's office, and some other important statistical tables; but it is never done as much as would be desirable. The reason is obvious. Each ratio can only be obtained by a tedious long division sum, or by the use of logarithms. Many hours of tedious mental labour must be endured before a large statistical table can be reduced to its proper intelligible form. The result is that, in the absence of an office full of clerks, the labour is almost always shirked, and the reader of our statistical publications is left to extract their meaning as well as he can—which means very badly.

With the Arithmometer at hand, however, the work becomes rather amusement than labour, especially to those at all fond of ingenious and beautiful mechanism. The amount of time saved will vary with the character of the operation and the nature of the calculations; but about the saving of mental exertion there can be no possible doubt. The machine will also be of great use in effecting the reduction of numbers from one denomination to another, as from pounds to francs, dollars, rupees, &c.; tons to kilogrammes, yards to metres, &c., &c. It is requisite, however, that all numbers should be expressed in the purely decimal form, so that our absurd systems of money, weights, and measures, present obstacles to the easy use of the machine. When frequent alterations of any numbers in a definite ratio have to be made, it will often be best to calculate at the outset a table of the multiples of that ratio; this can be done with the utmost facility by the machine, because each turn of the handle gives a fresh number for the table. A reduction table can thus be prepared as fast as the numbers can be written down, and all further labour of calculation is saved by reference to this table.

I should like to add, that if our science of statistics is to progress in the spirit of the times, frequent use must be made of the Method of Least Squares. This method is merely the method of means or averages employed in a more complete and elaborate way, to disentangle the probable values of several unknown quantities which happen to be involved together in our statistical data. The working of the process, as described in Merriman's "*Elements of the Method of Least Squares*" (Macmillan, 1877), in De Morgan's "*Essay on Probabilities*," and many other works on the same subject, can be carried on by mere rule of thumb; but it requires a great amount of multiplication. With Thomas' Arithmometer, however, the requisite calculations can be readily accomplished, and I conceive, therefore, that in this as well as in other cases, the fre-

quent use of the machine is indispensable as a condition of any distinct advance in statistical inquiry. Familiarity with the arithmetical machine would gradually lead to the undertaking of intricate numerical inquiries, which are practically impossible without its aid.

The use of the machine as employed by actuaries has already been described by General Hannyngton in the "Journal of the Institute of Actuaries," vol. xvi, p. 244, and a very able paper "On the Arithmometer of M. Thomas (de Colmar) and its Application to the Construction of Life Contingency Tables," was printed by Mr. Peter Gray, in the journal of the same Society for 1874, and issued separately as a pamphlet. The operations therein described are, however, far more complicated than what the statist will usually need to perform.

The working of the machine is so easy, that it can be learnt by any person of ordinary intelligence in the course of an hour, and with a few little precautions, which are stated in the explanatory book of instructions delivered with the machine, there need be no fear of its getting out of order. It is said that machines are often worked daily for many years in succession, without any mishap or error occurring; but other operators find that certain springs are apt to break, and require replacement. The machine, though constructed only in Paris, can be inspected and purchased at a dépôt in London. The smallest machine now made gives a product not exceeding twelve places of figures, which would be sufficient for most purposes; but the medium-sized machine, giving a product of sixteen places, is said to be more convenient in use, as there is greater scope and freedom of action. My own limited experience of the machine leads me to think that this may be so.

I have been induced to bring the Arithmometer under the notice of the Society, by the feeling that there must be many who are (as I was myself a few months ago) imperfectly acquainted with the value of the machine. Had I purchased a machine when I first saw it at the Paris Exposition of 1867, I should have been saved a great deal of mental fatigue during the eleven subsequent years, and I might have undertaken statistical inquiries which are beyond the power of a private unaided arithmetician. The conviction that this machine must prove no inconsiderable factor in the progress of statistical and social science, renders it desirable for those acquainted with its value, to endeavour to overcome the inertia, which, especially in this country, impedes the introduction of any new labour-saving invention. A machine which was in its essential features invented by the youthful genius of Pascal, in the year 1642, is only now coming into use. For *two hundred and thirty-six years* (236 years!) practical men have ignored what may prove one of the most practically useful, as it is certainly one of the most beautiful products of human reason.

PROFESSOR JEVONS'S DESCRIPTION of the CALCULATING MACHINE.

Dr. FARR said the Society was indebted to Professor Jevons for bringing forward the machine and explaining its uses. It was of great use in the Registrar-General's office in determining the ratios and the percentage of deaths, births, marriages, and so on, and this was done on a very large scale. The clerks were allowed to work by logarithms or by arithmetic, but they invariably preferred the machine. Undoubtedly in order to make it of universal application, there should be a decimal system of calculation in weights, measures, and money; but at present he recommended its use for calculations on a large scale.

Dr. BALFOUR said that for the last five or six years, when he was at the head of the Army Medical Department, they could make all their calculations as quickly as they could by the machine, but he thought it minimised the chance of error. In working out logarithms there was a source of error, which was avoided by using the machine. All the time it was used in the office under his charge he never had any cause to complain of it except that the springs that were worked on the pegs were apt to go wrong. He was indebted to General Hannyngton, who pointed out how this could be remedied, and after he had done so he had never found the machine to go wrong once. On one occasion the clerk of the Department said that the machine had gone wrong, but it was afterwards found that the error was on the part of the clerk, and not on the part of the machine. In working out ratios it minimised the chance of error, which was a consideration of great importance.

Mr. WALFORD said he had been familiar with the machine some years ago. He had seen some sixty calculating machines, but he thought on the whole that the one exhibited was the most available for general purposes. He did not think it was a safe thing to use, except by persons familiar with it, because if it was not set with great care errors would arise, and if one number was wrong, the whole would be wrong. He would minimise that difficulty by having two machines to commence at decennial points, and work the one with the other—not, however, by the same operator—and if the results were both the same, they might be pretty well sure that they were correct. It would save a great amount of labour, money, and thought, and simply required care.

Mr. A. H. BAILEY, President of the Institute of Actuaries, said that the machine grew upon people the more they used it. There was a variety of purposes to which it could be applied. It was very useful in the distributing of a bankrupt's estate, for instance, and one of its great uses would be to introduce a decimal system of arithmetic; but even with our present system of weights and mea-

tures, and of pounds, shillings, and pence, the machine could be used. It should, however, be understood that it was entirely a decimal machine.

The PRESIDENT, in moving a vote of thanks to Professor Jevons, said that he had shown that it was an extremely valuable instrument, and he thought it might be looked forward to as one of the principal instruments in Government offices. Although it might not save time, it would save a good deal of mental labour, and that was one of the greatest considerations in a Government department.



ADDRESS of the PRESIDENT of SECTION F of the BRITISH ASSOCIATION, at the FORTY-EIGHTH MEETING, held at DUBLIN, in August, 1878. By PROFESSOR INGRAM, LL.D., F.T.C.D.

HAD I been called upon at any other time to preside over this Section, I should have followed the example of most of my predecessors, in selecting as the subject of the discourse which it is usual to deliver from this chair, some one of the special economic questions of the day, which my knowledge might have enabled me most adequately, or, let me rather say, least inadequately to treat. But I have felt that the matter with which I should deal has been practically determined for me beforehand. An important crisis in the history of our Section has taken place. Its claim to form a part of the British Association has been disputed. Some of the cultivators of the older branches of research but half recognise the right of Political Economy and Statistics to citizenship in the commonwealth of science; and it is not obscurely intimated on their part that these studies would do well to relinquish pretensions which cannot be sustained, and proceed, with or without shame, to take the lower room to which alone they are entitled.

How far this sentiment is entertained by those who would be recognised as the best representatives of the mathematical, physico-chemical and biological sciences, I am unable to say. But it is natural to suppose that no one clothed with an official character in the Association, could have assumed towards us such an attitude as I have described, unless supported by a considerable weight of opinion amongst those within the body who are regarded as competent judges. Still more—and this is what lends a peculiar gravity to the incident—such a step could scarcely have been taken if the general mass of the intelligent public entertained strong convictions as to the genuinely scientific character of political economy, as it is usually professed and understood amongst us. It is, in fact, well known that there is a good deal of scepticism current on this question. There may be seen in various quarters evidences sometimes of contemptuous rejection of its claims, sometimes of uneasy distrust as to their validity. And even amongst those who admit its services in the past, there is a disposition to regard it as essentially effete, and as having no scientific or practical future before it.

When some of our leading economists met not long ago to celebrate the centenary of the publication of the "Wealth of

"Nations," it was plain from the tone of most of the speakers that the present position of their studies, as regards their general acceptance and public influence, was considered to be far from satisfactory.

"To those who are interested in economic science," says a recent writer in "*Mind*," "few things are more noticeable than the small hold which it has upon the thoughts of our generation. Legislation has been directly influenced by it in the past, and the results of the application of its doctrines are manifest in every department of our laws; yet in spite of its triumph in this region, we find a wide-spread tendency to look on its teaching with suspicion."

"I seem to observe," said Professor Cairnes in 1870, "in the literature and social discussions of the day, signs of belief that political economy has ceased to be a fruitful speculation; nay, I fear I must go further and admit that it is regarded by some energetic minds in this country as even worse than unfruitful—as obstructive—a positive hindrance in the path of useful reform. . . . It is not denied that the science has done some good; only it is thought that its task is pretty well fulfilled."

The attitude which the working classes generally take up with respect to political economy, may be seen from Mr. Howell's candid and instructive book on the conflicts of capital and labour. Professor Jevons has recognised quite recently the state of facts indicated by these testimonies, though he has no misgiving as to any grounds for it in the current methods or doctrines of political economy; if the public do not like the science, so much the worse, he thinks, for the public—"the fact is," he says, "that just as physical science was formerly hated, so now there is a kind of ignorant dislike and impatience of political economy."

It is plain, therefore, that the low estimate of the studies of our Section which is entertained by some members of the Association, is no isolated phenomenon, but is related to a mass of opinion outside the body—that, in fact, the crisis which, as I have said, has shown itself in the Association with respect to our Section, is only the counterpart, in a more limited sphere, of a crisis in the history of economic science, which is apparent on the face of English—and, as I shall point out by and by, not of English only, but of European thought. It is important to understand the origin and significance of this state of things; and to that subject, accordingly, I purpose to direct your attention.

We must take care to distinguish, at the outset, between two views which are sometimes confounded—namely, between the opinion that economic facts do not admit of scientific investigation, and the quite different opinion that the hitherto prevailing mode of

studying those facts is unsatisfactory, and many of the current generalisations respecting them unsound. That economic phenomena are capable of scientific treatment is a proposition which I do not intend to spend time in demonstrating. It is comprehended in the more general question of the possibility of a scientific Sociology; and any one who disputes it will have enough to do in combating the arguments by which Comte, and Mill, and Herbert Spencer have established that possibility. Nor do I intend to waste words in showing that if there be a science of society, no other branch of investigation can compete with it in importance or in dignity. It has the most momentous influence of all on human welfare. It presides, in fact, over the whole intellectual system—an office which some, mistaking the foundation for the crown of the edifice, have claimed for Mathematics. It receives contributions from all other departments of research—whether in the ascertainment of results, to be used for its purposes, or in the elaboration of methods to be applied in its inquiries. It is the most difficult of all the sciences, because it is that in which the phenomena dealt with are most complex and dependent on the greatest variety of conditions, and in which, accordingly, appearances are most deceitful, and error takes the most plausible forms. That the professors of the more stably—because earlier—constituted branches of knowledge should ignore the claims of this great department of inquiry would be doubly disastrous—first, by tending to leave the scientific system without its necessary completion in a true theory of the highest and most important class of phenomena accessible to our researches; and secondly, by tending, so far as prejudice and misconception can temporarily produce such an effect, to hand over to minds of insufficient power, and destitute of the necessary preparation, studies which, more than any others, require a strong intelligence, disciplined in the methods and furnished with the results of the sciences of inorganic and organic nature. There is, in my judgment, no duty more incumbent in our day on the professors of these last, than that of recognising the claims of Sociology, whilst at the same time enforcing on its cultivators the necessity of conforming to the genuine scientific type. Yet it is now sought to expel from this Association, which ought to represent the harmonious union of all positive research, the very limited and inadequate portion of the science of society which has ever found recognition in its scheme.

I assume then that economic phenomena are proper subjects for scientific treatment. This I imagine the public at large are not disposed to doubt, though they may not repose much confidence in the methods actually followed. But, strangely enough, a professor of political economy has recently disputed the possibility, or at least, the utility of a scientific handling of economic questions.

Professor Bonamy Price, of the University of Oxford, who has published a volume in which several of those questions are handled with much ability and freshness of treatment, not only repudiates a scientific character for his own inquiries, but alleges the scientific method to be a mistake. According to him, ordinary people are right in believing that they can arrive at truth on these questions by the aid of their natural lights—that by virtue of their untrained sagacity they can take a shorter and far clearer path through their own observations, than through what he calls “the tangled jungle” of scientific refinements.” In plain terms, he is in favour of relegating the study of economic phenomena to the domain of empiricism—to what is called the common sense of practical men.

A more fatal suggestion could not, in my judgment, be made. I shall have to express the opinion, that the prevalent methods of economic research and exposition are open to grave criticism; but how can this be remedied by throwing ourselves on the undisciplined and random inspirations of so-called common sense? It was common sense that long upheld the mercantile system; and indeed there is scarcely any error that it has not, at different times, accepted and propagated. What security can there be in this as in other branches of inquiry against endless aberrations and confusions, but systematic observation and analysis of the phenomena, resulting in a body of ascertained and reasoned truth; and what is this but science? I am forced to say that Professor Price seems to me to labour under radical misconception as to the nature and conditions of science. Because the facts of the production and distribution of wealth have always gone on spontaneously amongst mankind, and definite modes of social action with respect to them have progressively established themselves, economic investigation, he argues, adding nothing to what men have with more or less sagacity and intelligence always practised, cannot be regarded as having the nature of a science. But it might be similarly shown that there is no science of human nature, for the intellectual processes, the feelings, and the practical tendencies of man have always been similar; they have not waited for science to develop themselves and pass into action; rather their long continued spontaneous action was the necessary condition of the science that studies them. So, too, with respect to all human action on external nature—practice always must precede theory; art, more or less intelligent, must precede science. Science is simply the ascertainment and co-ordination of laws: a law is the statement of a general fact; we explain a particular fact by showing that it is a case of a more general fact. Now, from the beginning to the end of his own book, Professor Price is endeavouring to ascertain such general facts, and to explain particular facts by means of them—in other

words, he is busied upon science without knowing it. He rests much of the importance of economic studies, which he regards as essentially practical, on their efficacy for uprooting the evil weed of false theory; but theory of some sort will always be necessary. *On ne détruit que ce qu'on remplace*; and the only way of extinguishing false theory is to establish the true.

I therefore repudiate the doctrine of Professor Price, and I hold by the truth, which has indeed now become a philosophic commonplace, that social phenomena generally, and amongst them the economic phenomena of society, do admit of scientific treatment. But I believe, though on different grounds from his, that the mode in which the study of these phenomena has been conceived and prosecuted in the hitherto reigning school, is open to serious objections; and the decline in the credit and influence of political economy, of which I have spoken, appears to me to be in a large measure due to the vicious methods followed by its teachers. The distrust of its doctrines manifested by the working classes is no doubt in a great degree owing to the not altogether unfounded belief, that it has tended to justify too absolutely existing social arrangements, and that its study is often recommended by the influential classes with the view of repressing popular aspirations after a better order of things. And it is doubtless true that some of the opposition which political economy encounters, is founded on the hostility of selfish interests, marshalled against the principles of free-trade, of which it is regarded as the representative.

But it is not with manifestations of this kind, which belong to politics rather than philosophy, that I am now chiefly concerned. It is more appropriate to this place to point to the growing coldness or distrust exhibited by the higher intellects towards political economy—a fact which lies on the surface of things, and shows itself everywhere in contemporary literature. The egoistic spirit in which it is steeped may explain the continued protest which Carlyle and Ruskin have, mainly as moral preachers, maintained against it—though that very spirit is, as I shall show, closely connected with vicious method. But what are we to say of Miss Martineau's final judgment? Speaking in her "Autobiography" of that part of her career in which, as Professor Jevons says, "she successfully popularised the truths of political economy in her admirable tales," she tells us that what she then took to be the science of political economy as elaborated by the economists of our time, she had come to regard as being no science at all, strictly speaking. "So many of its parts," she adds, "must undergo essential change, that it may be a question whether future generations will owe much more to it than the benefit (incalculable to

"be sure) of establishing the grand truth, that social affairs "proceed according to great general laws, no less than natural "phenomena of every kind." Here is a conclusion resting essentially on intellectual, not moral, grounds; and I presume Professor Jevons will not explain it as a result of ignorant impatience.

But it is no longer necessary to consider scattered indications of the feeling of eminent individualities on this matter, for of late years the growing dissatisfaction has risen to the dimensions of a European revolt, whose organs have appeared not in the ranks of general literature, but within the sphere of economic investigation itself. It is a characteristic result of the narrowness and spirit of routine which have too much prevailed in the dominant English school of economists, that they are either unacquainted with, or have chosen to ignore, this remarkable movement.

The largest and most combined manifestation of the revolt has been in Germany, all whose ablest economic writers are in opposition to the methods and doctrines of the school of Ricardo. Roscher, Knies, Hildebrand, Nasse, Brentano, Held, Schmoller, Schäffle, Schönberg, Samter, and others, have taken up this attitude. In Italy a group of distinguished writers, amongst whom are named Luzzatti, Forti, and Lampertico, follow the same direction, and have a special organ in which they advocate their views. In Denmark a similar scientific evolution is in progress chiefly under the leading of Frederiksen. The eminent Belgian publicist, M. de Laveleye, has done much to call attention to these new tendencies of economic doctrine, in which he himself participates. In England a corresponding movement, by no means imitative, but on the contrary, highly original in character, is represented by Mr. Cliffe Leslie, whom I mention with pride as an alumnus of this University. In France, the new direction is not so marked in the economic world, strictly so called, though in that country it really first appeared. For the vices of the old school, which have led to the development of the new, were powerfully stated more than forty years ago by a French thinker, who is too little studied by the mass of his countrymen, Auguste Comte, the greatest master who has ever treated of sociological method. How far the Germans may have been led by national prejudice to ignore his influence in the formation of their views, I will not undertake to say; but there is no doubt of the fact that the tendencies they have sought to impress on economic studies are largely in accordance with the teaching on that subject contained in his "*Philosophie Positive*."

In the admirable chapters of that work, in which he described the normal conditions and method of social science, whilst paying a warm tribute to the merits of Adam Smith, he criticised what he considered the aberrations of later political economists. The late

Professor Cairnes, of whom, as a member of this University, we are justly proud, and whom, even when I differ with him, I name with all the respect due to an able and earnest searcher after truth, attempted an answer to some of these strictures of Comte, which again elicited a reply from Mr. Frederic Harrison. Considering the criticisms of the great Frenchman to have been perfectly just when he wrote them, and only requiring a certain correction now in view of the healthier tendencies apparent in several quarters since his work was published, I shall dwell at some length on the several grounds of his censures, stating and illustrating them in my own way, which will differ considerably from the mode of treatment which they received in the controversy to which I have referred. Those grounds, though nowhere by him formally enumerated, are essentially reducible to four, having relation—first, to the attempt to isolate the study of the facts of wealth from that of the other social phenomena; secondly, to the metaphysical or viciously abstract character of many of the conceptions of the economists; thirdly, to the abusive preponderance of deduction in their processes of research; and fourthly, to the too absolute way in which their conclusions are conceived and enunciated. It will be found that these heads cannot be kept strictly apart, but run into each other at several points. The separation of them will, however, serve to give distinctness and order to the discussion.

The first objection is, as I have stated, to the pretension of the economists to isolate the special phenomena they study, the economic phenomena of society, from all the rest—its material aspect from its intellectual, moral, and political aspects, and to constitute an independent science, dealing with the former alone, to the exclusion of the latter. This question as to the relation of economic studies to the general body of human knowledge, is really the most radical and vital that can be raised respecting them, and on it more than on any other depends, in my opinion, the future of these studies.

It is sometimes sought to get rid of this question in a very summary manner, and to represent those who raise it either as weakly sentimental persons, who shrink from studying the conditions of wealth apart, because there are better and higher things than wealth; or as persons of confused intellect, who wish to mix together things which are essentially different in their nature. On the former of these imputations it is unnecessary to dwell. I am far from undervaluing sentiment in its proper sphere; but I take up no sentimental ground on the present question. In denying the propriety of isolating economic investigation, I appeal to considerations derived from the philosophy of science. The second

allegation is, therefore, the only one with which I am now concerned.

In a recent elementary treatise on political economy, by a well-known writer, it is argued:—"We must do one thing at a time; we cannot learn the social sciences all at the same time. No one objects to astronomy that it treats only of the stars, or to mathematics that it treats only of numbers and quantities. . . . There must be many physical sciences, and there must be also many social sciences, and each of these sciences must treat of its own proper subject, and not of things in general."

But a little consideration will show that these remarks touch only the outside of the question. Of course we must do only one thing at a time. Only one out of several branches of a subject can be considered at a time: but they are yet branches of a single subject, and the relations of the branches may be precisely the most important thing to be kept in view respecting them. It might be said: "It is important, no doubt, that plant life and animal life should both be understood; but zoology and botany are different sciences; let them be studied apart; let a separate class of *savants* be appropriated to each, and every essential end is secured." But what says Professor Huxley, in unison with all the most competent opinion on the subject?—"The study of living bodies is really one discipline, which is divided into zoology and botany simply as a matter of convenience." They are, in fact, branches from the common stem of biology, and neither can be rightly conceived without bearing this in mind. Now I maintain that for still stronger reasons the several branches of social science must be kept in the closest relation.

Another biological analogy will place these reasons in the clearest light. When we pass from the study of the inorganic world to that of the organic, which presupposes and succeeds to the former, we come upon the new idea of a living whole, with definite structures appropriated to special actions, but all influencing one another, and co-operating to one result—the healthy life of the organism. Here, then, it is plain that we cannot isolate the study of one organ from that of the rest, or of the whole. We cannot break up the study of the human body into a number of different sciences, dealing respectively with the different organs and functions, and, instead of a human anatomy and physiology, construct a cardiology, a hepatology, an enterology. It is not of course meant that special studies of special organs and functions may not be undertaken—that they may not be temporarily and provisionally separated from each other; but the fact insisted on is, that it is essential to keep in view their relations and interactions, and that therefore they must be treated as forming part of the subject-matter of one and the same

science. And what is thus true of theory is also true of practice—the physician who had studied only one organ and its function would be very untrustworthy even in the therapeutics of that organ. He who treats every disease as purely local, without regard to the general constitution, is a quack; and he who ignores the mutual action of the *physique* and the *moral* in disease, is not properly a physician, but a veterinary.

These considerations are just as applicable, *mutatis mutandis*, to the study of society, which is in so many respects kindred to biology. The most characteristic fact about what is well called the social system, is the consensus of its different functions; and the treatment of these functions as independent is sure to land us in theoretic and practical error. There is one great science of sociology; its several chapters study the several faces of social existence. One of these faces is that of the material well-being of society, its industrial constitution and development. The study of these phenomena is one chapter of sociology, a chapter which must be kept in close relation with the rest.

The justice of this view is clearly seen when we consider the two-fold aspect of sociology as statistical and dynamical—that is, as dealing on the one hand with laws of coexistence, and on the other with law of succession. As in biology we have alongside of the theory of the constitution and actions of an organism, the further theory of its development in time: so in sociology we have, beside the doctrine of constitution and actions of society, the doctrine of its evolution from a primitive to a higher condition. Now nothing is plainer than that in the course of the human evolution the several social elements did not follow separate and independent processes of growth. The present economic condition, for example, of the nations of western Europe, as a group, or of any individual one amongst them, is the result of a great variety of conditions, many of them not in their own nature economical at all. Scientific, moral, religious, political ideas and institutions have all concurred in determining it. But if they worked in this manner in the past, it follows that they are working so in the present. It is therefore impossible rationally to conceive or explain the industrial economy of society without taking into account the other coexisting social factors.

In nothing is the eminent superiority of Adam Smith more clearly seen than in his tendency to comprehend and combine in his investigations all the different aspects of social phenomena. Before the term "social science" had been spoken or written, it could not be expected that he should have conceived adequately the nature and conditions of that branch of inquiry—much less founded it on definitive bases—a task which was to be achieved more than fifty

years later by the genius of Comte. But he proceeded as far in this direction as it was possible to do under the intellectual conditions of his time. In his "Theory of Moral Sentiments" he promises to give in another discourse "an account of the general principles of law and government, and of the different revolutions they have undergone in the different ages and periods of society, not only in what concerns justice, but in what concerns police, revenue, and arms, and whatever else is the subject of law." Here is no separation of politics, jurisprudence, and political economy, but rather an anticipation, wonderful for his period, of general sociology, both statical and dynamical—an anticipation which becomes more extraordinary still, when we learn from his literary executors that he had formed the plan of a connected history of the liberal sciences and elegant arts, which would have supplied, in addition to the social aspects already mentioned, a view of the intellectual progress of society. Of this last undertaking there remains to us only the remarkable essay on the history of astronomy, which is evidence at once of his thorough acquaintance with that branch of science, and of his profound philosophical conceptions on the nature of scientific inquiry in general. The other project too was never fully carried out; it may well be thought because it was essentially premature. The "wealth of nations" is in fact a part of that larger design; and though in his work he has for his main subject the economic phenomena of society, he has incorporated into it so much that relates to the other social aspects that he has on this very ground been censured by some of the later economists. Mill, however, who of all his English successors was the largest minded and the best equipped in respect of general culture, has recognised it as the great characteristic excellence of Smith that "in his applications of political economy, he perpetually appeals to other and often far larger considerations than pure political economy affords." In consequence of this admirable breadth of view, the study of the writings of Adam Smith is, I believe, more fitted than that of the works of any other economist, to cultivate in theorists a philosophic, and in practical men a statesmanlike, habit of mind.

In striking contrast with this spirit of the master is the affectation, habitual in his followers, of ignoring all considerations except the strictly economic—though in doing so they often pass over agencies which have important effects on material well-being. Thus, when Senior is led to make some observations of the utmost importance and interest, on the very doubtful advantage to a labouring family of the employment of the mother and the children in non-domestic work, he thinks it necessary to apologise for having introduced such remarks, as not, perhaps, strictly within

the province of political economy. And when he finds himself similarly induced to observe on the evils of severe and incessant labour, and the benefits of a certain degree of leisure—subjects so momentous to working men, and closely connected with their material as well as moral condition—he pauses and corrects himself, admitting that he should not only be justified in omitting, but perhaps was bound to omit, all considerations which have no influence on wealth. This is the very pedantry of purism; and the purism is not merely exaggerated, it is really altogether out of place. Mill, though, as I believe, he did not occupy firm ground in relation to the constitution of social science, is free from any such narrowness as this:—"For practical purposes," he says, "political economy is inseparably intertwined with many other branches of social philosophy. Except on matters of mere detail, there are perhaps no practical questions, even among those which approach nearest to the character of purely economical questions, which admit of being decided on economical premises alone." This is true; but it is only part of the truth. For purposes of theory as well as of practice, the several branches of social inquiry are inseparably intertwined; and this larger proposition Mill in another place has stated with all the desirable fulness of enunciation, declaring that "we can never understand in theory or command in practice the condition of a society in any one respect, without taking into consideration its condition in all other respects."

Yet, notwithstanding this ample admission, he appears to exhibit some uncertainty of view with respect to the relations of economic studies to general sociology; at least after repeated careful study of all that he has written on the subject, I confess myself unable to understand exactly the position he occupies. Sometimes he speaks of political economy as being a department "carved" (to use his own expression) "out of the general body of the science of society;" and again he speaks of it as belonging to a subordinate order of speculation to that with which the science of society is conversant—proposing to itself a quite different sort of question, and supplying only a sort of knowledge sufficient for the more common exigencies of daily political practice. The latter view is apparently reflected in the title of his economical treatise, which is called "*Principles of Political Economy, with some of their Applications to Social Philosophy*," a phrase which seems to imply that political economy is not a part of social philosophy at all, but is preparatory and ancillary to it. And it is interesting to observe that it was from this point of view of the study, as preliminary only and intended to prepare the way and provide materials for a true science of society that Comte in his correspondence

with Mill, encouraged the latter in his project of a special treatise on political economy.

The ground which the economists commonly take up in justifying their one-sided conclusions, is this: they announce that their treatment of every question is partial and incomplete, and that for a real solution all the other elements involved must be taken into account. Political economy, Professor Cairnes tell us, is absolutely neutral as between all particular schemes and systems of social or industrial life. It furnishes, he tells us, certain data that go towards the formation of a sound opinion, but can never determine our final judgment on any social question. Now this systematic indifferentism amounts to an entire paralysis of political economy as a social power capable of producing or confirming in the mass of the community just convictions on the most important of all subjects. How, it may well be asked, are sufficiently fixed and convergent opinions on such matters to be generated in the public mind? How are the scattered lights, supplied by the several partial and one-sided studies of human affairs, to be combined, so as to convey social truth to the understanding, and impress its practical consequences on men's consciences? These queries bring into the clearest light the doctrine I wish to commend to your attention—namely, that what is wanted for this purpose is a study of social questions from all the points of view that really belong to them, so as to attain definite and matured conclusions respecting them—in other words, a scientific sociology, comprehending true economic doctrine, but comprehending also a great deal more.

Even on the special subjects in which purely economic considerations go for most, it will not do to recognise these considerations only. Professor Fawcett, in his recent timely and useful treatise on free-trade and protection, finds that he cannot restrict himself, in the study of that question, to the economic point of view. "As complaints," he says, "are constantly made by protectionists that their opponents persistently ignore all the results of protection which are not economic, I will be careful to consider those results." And he goes on to maintain the proposition, in which I entirely concur, that protection may produce social and political consequences even far more mischievous than the economic loss it causes to a country. I believe that the most effective weapons against this and other economic errors will often be found in reasons not based on material interest, but derived from a consideration of the higher ends of society, and the ideal of the collective life of the race. And when we have to deal with the larger economic subjects, now rapidly increasing in urgency, which are more immediately in contact with moral conceptions, these questions of the ultimate ends of the social union cannot be left out of

sight. This was seen by Mill, who was open to all noble ideas, and saw that the practical life of mankind cannot be governed by material egoism. In discussing the claims of communism, he says:—"Assuming all the success which is claimed for this state of society by its partisans, it remains to be considered how much would be really gained for mankind, and whether the form that would be given to life, and the character which would be impressed on human nature, can satisfy any but a very low estimate of the capabilities of the species." Here, you observe, is raised the entire question of the ends of social life; and economic progress is subordinated, as it ought to be, to the intellectual and moral development of humanity.

Mr. Lowe, at the Adam Smith celebration, declared himself not to be sanguine as to the future of political economy; he believes that its great work, which he justly remarks has been rather a negative than a constructive one, has been already accomplished, and that not much more remains to be achieved. Such, indeed, as we have seen, Professor Cairnes declared to be the prevalent idea of the great majority of educated people—that political economy has fulfilled its task by removing impediments to industry; and that it cannot help us—is rather likely to be an obstruction—in the social work which now lies before us. I will not use language so strong; but it does appear to me that either as a fruitful branch of speculation, or as an important source of practical guidance, it will cease to command, or rather will fail to regain attention, unless it be linked in close connection with the general science of society—unless it be, in fact, subsumed under and absorbed into sociology.

The second common error of the political economists since the time of Adam Smith, consists in this, that, mainly by the influence of Ricardo, they have been led to conceive and present, in a viciously abstract way, the conceptions with which they deal.

Abstraction is, indeed, necessary to all science, being implied in the search after unity amidst variety. The criterion of true or false science lies precisely in the right or wrong institution of the relation between the abstract and the concrete. Now, in matters of human life especially, we have only to carry abstraction far enough in order to lose all hold on realities, and present things quite other than they in fact are; and, if we use these abstractions in the premises of our reasonings, we shall arrive at conclusions, either positively false, or useless for any practical purpose. As Comte remarked, the most fundamental economic notions have been subtilised in the ordinary treatises, till the discussions about them often wander away from any relation to fact, and lose themselves in a region of nebulous metaphysics; so that exact thinkers have felt

themselves obliged to abandon the use of some of the most necessary terms, such as *value, utility, production*, and to express the ideas they attach to them by circuitous phrases. I am far from condemning the effort after accuracy of language and well-defined terms; but the endless fluctuations of economists in the use of words (of which numerous examples are given in Senior's Appendix to Whately's "Logic," and in Professor Price's recent work) certainly indicate a very general failure to apprehend and keep steadily in view the corresponding realities.

A vicious abstraction meets us on the very threshold of political economy. The entire body of its doctrines, as usually taught, rests on the hypothesis that the sole human passion or motive which has economic effects, is the desire of wealth. "It aims," says Mill, "at showing what is the course of action into which mankind living in a state of society would be impelled if that motive"—except so far as it is checked by aversion to labour and desire of present indulgence—"were absolute master of all their actions." "So strictly is this its object," he adds, "that even the introduction of the principle of population interferes with the strictness of scientific arrangement." But what is the desire of wealth? It is, as Mr. Leslie says in an article in "*Hermathena*," in which he urges the necessity for a new method in political economy—it is a general name for a great variety of want, desires, and sentiments, widely differing in their economic character and effect, and undergoing fundamental changes in some respects in the successive periods of society. As moralists, viewing the same abstraction, not as a condition of well being, but as the root of all evil, have denounced under the common name of love of wealth, not only sensuality, avarice, and vanity, but the love of life, health, cleanliness, decency, and art, so all the needs, appetites, tastes, aims, and ideas which the various things comprehended in the word "wealth" satisfy, are lumped together in political economy as a principle of the economic world. The motives summed up in the phrase vary in different individuals, different classes, different nations, different sexes, and especially in different states of society; in these last, indeed, the several desires comprehended under the general name follow definite laws of succession. The point Mr. Leslie here insists on is, be it observed, not merely—though that is also true—that the phrase *desire of wealth* represents a coarse and crude generalisation in the natural history of man; but that the several impulses comprised under the name assume altered forms and vary in their relative strength, and so produce different economic consequences, in different states of society: and therefore that the abstraction embodied in the phrase is too vague and unreal for use in economic investigations of a really scientific character. The special desire

for accumulation, apart from the immediate or particular uses of wealth, is no doubt a principle of social growth which must not be overlooked; but this, too, takes different directions and works to different ends in different stages of social development. All these economic motors require to be made the subjects of careful and extensive observation; and their several forms, instead of being rudely massed together under a common name, should be discriminated as they in fact exist. The consumption, or more correctly the use of wealth, until lately neglected by economists, and declared by Mill to have no place in their science, must, as Professor Jevons and others now see, be systematically studied in its relations to production and to the general material well-being of communities. And none of these things can be really understood without correct views of the structure and evolution of society in all its aspects; in other words, we are led back to the conclusion, that they cannot be fruitfully treated apart from general sociology. I have not been able to do more than indicate the leading features of a criticism which I recommend all who are interested in the subject to pursue in its full development in Mr. Leslie's admirable essay.

There is a common economic abstraction, which by the unsympathetic colour it has given to political economy, has tended—perhaps more than anything else—to repel the working classes from its study. By habitually regarding labour from the abstract point of view, and overlooking the personality of the labourer, economists are led to leave out of account some of the considerations which most seriously affect the condition of the working man. He comes to be regarded exclusively as an agent—I might almost say, an instrument of production. It is too often forgotten that he is before all things a man and a member of society—that he is usually the head of a household, and that the conditions of his life should be such as to admit of his maintaining the due relations with his family—that he is also a citizen, and requires for the intelligent appreciation of the social and political system to which he belongs a certain amount of leisure and opportunity for mental culture. Even when a higher education is now sought for him, it is often conceived as exclusively designed to adapt him for the effective exercise of his functions as a producer, and so is reduced to technical instruction; whereas moral and social ideas are for him, as for all of us, by far the most important, because most directly related to conduct. Labour, again, is viewed as a commodity for sale, like any other commodity; though it is plain that, even if it could be properly so called at all, yet in some particulars, as in the difficulty of local transfer (a family having to be considered), and in the frequent impossibility of waiting for a market, it is quite exceptional amongst commodities. By a further abstraction, the difference of the social

vocations of the sexes is made to disappear, in economic as in political reasoning, by means of the simple expedient of substituting for *man* in every proposition *person* or *human being*; and so by little else than a trick of phraseology, self-support is made as much an obligation of the woman as of the man. It is true that ungenerous sentiment has much to do with the prevalence of these modes of thought; but what it is most suitable to insist on here, is that the science on which they rest, or in which they find justification, is false science. By merely keeping close to facts and not hiding realities under lax generalisations, we shall be led to more humane, as well as truer, conceptions of the proper conditions of industrial life.

It is a characteristic feature of the metaphysical habit of mind (using that phrase in the sense with which Comte has familiarised us) to mistake creations of the speculative imagination for objective realities. Examples of this tendency have not been wanting in the dominant system of political economy. The most remarkable is perhaps furnished by the "Theory of the Wages Fund." The history of that doctrine is instructive, but I cannot here enlarge upon it; it may suffice to say that though the so-called wages fund is simply a scientific figment, the only legitimate use of which would be to facilitate the expression of certain relations, it has been actually regarded as an actual entity, possessing a determinate magnitude at any assigned epoch. It is true that after Mr. Thornton had convinced Mill of the unsubstantial nature of this theory, it disappeared from his treatise; but, strange to say, even when relinquished by the master, some of the disciples continued to cling to it. Professor Cairnes, in his latest work, insisted that Mill was mistaken in abandoning it, and it is still taught in some of the elementary manuals—not, I am glad to observe, in that of Professor Jevons, who indeed appears never to have accepted it. There are, in my opinion, other quite as illusory economic conceptions which have met with a good deal of acceptance, and have even obtained the sanction of distinguished names. If I do not now enter on an examination of them, it is because I am unwilling that the general views I am desirous of presenting should be lost in a series of special discussions, for which a more suitable opportunity can easily be found.

The third prevailing error of the economists—and, with the exception of the isolation of their study, this is the most serious of all—is that of exaggerating immensely the office of deduction in their investigations. Deduction has indisputably a real and not inconsiderable place in sociology. We can sometimes follow the method which Mill calls the *à priori* deductive, that is, we can, from what we know of the nature of man and the laws of the external world, see beforehand what social phenomena will result from their joint action; but though the economists of the so-called orthodox school

recognise no other method, we cannot really proceed far in this way, which is available only in simple cases. Social phenomena are in general too complex, and depend on too manifold conditions, to be capable of such *à priori* determination. In so far as the method can be used, the vital condition of its legitimate employment is the ascertainment of the consilience of the results of deduction with those of observation; and yet such verification from fact of the conclusions of theory, though essential to the admissibility of this process of inquiry, is too often entirely overlooked. Much more commonly the function of deduction is different from what has just been described, and its relation to observation is inverted. The laws of the economic constitution and movement of society are ascertained by observation, whether directed to contemporary life or the history of the past. The office of deduction is then to verify and control the inductions which have been arrived at, using for this purpose considerations founded on the qualities of human nature and the external conditions to which society is subjected. Results which could not have been elicited by *à priori* reasoning from the latter data, may, when inductively obtained, be in this way checked and rationalised. The pretension of the economists, formally set forth in Senior's treatise, to deduce all the phenomena of the industrial life of communities from four propositions, is one that cannot be sustained. But conclusions derived from observation may be placed in relation with the laws of the world and of human nature, so far at least as to show that they contradict nothing we know respecting those laws. This method, in which inductive research preponderates, and deduction takes a secondary place as means of verification, is the really normal and fruitful method of sociological inquiry. Finding its principal resources in human history, it may be best called the historical method.

It must not, however, be supposed that by this expression we mean nothing more than the ascertainment of fact by historical investigation. This is the indispensable basis, but by itself it would be matter rather of erudition than of science. We mean further, the comparison of the successive states of society in order to discover the laws of social filiation—a process similar in principle to the biological comparison of organisms of different degrees of development. If we followed exclusively the *à priori* deductive method, in (for example) economic research, and sought to infer the economic facts of life from the nature of the world and man, we could arrive only at one determinate order of things, whilst we know that in reality the economic organisation and functions of society vary in time according to definite laws of succession. Mr. Lowe, indeed, will have it "political economy is founded on "the attributes of the human mind, and nothing can change it;"

which means, I suppose, that its formulas must always correspond with the phenomena. But how can this view be reconciled with the now ascertained fact, that society has passed through states in which the modern economic constitution was so far from existing, that property did not belong to the individual, but to the community? The *à priori* method, in fact, overlooks what is the main agency in the social movement—namely, the accumulated influence of anterior on subsequent generations of mankind; an influence too complex to be estimated deductively. Every department of social life, and amongst the rest the industrial system, undergoes transformation—not arbitrarily indeed, but in accordance with law; and if we wish to understand any of those departments, we must study its transformations, considering each successive form in relation to all the preceding and contemporary conditions.

There is, indeed, no more important philosophical theorem than this: that the nature of a social fact of any degree of complexity cannot be understood apart from its history. "Only when its 'genesis has been traced,'" says Mr. Herbert Spencer, "only when 'its antecedents of all orders have been observed in their co-operation, generation after generation, through past social states—is there reached that interpretation of a fact which 'makes it a part of sociological science.'" To understand, for example, the true meaning of the trade societies of modern times, so important an object of economic study, "we must," he says, "go back to the older periods when analogous causes produced 'analogous results. And facts of this order,'" he adds, "must be 'studied not merely in their own successive forms, but in relation 'to the other phenomena of their time—the political institutions, 'the class distinctions, the family arrangements, the modes of 'distribution and degree of intercourse between localities, the 'amounts of knowledge, the religious beliefs, the morals, the 'sentiments, the customs.'" These considerations all point to the historical method, and, I may add, they all confirm what I have already urged, that the economic phenomena of society cannot be isolated from its other aspects. When our object is not the explanation of any past or present fact, but the prevision (within possible limits) of the future, and the adoption of a policy in relation to that future, our guide must still be the historic method, conceived as indicating, from the comparison of successive states, the general tendency of society with respect to the phenomenon considered, and the agencies which are in course of modifying existing systems. "Legislative action of no kind," again says Mr. Spencer, "can be taken that is not either in agreement with or 'at variance with the processes of national growth and development as naturally going on." We can by judicious action modify

in their special mode of accomplishment or in the rate of their development, but cannot alter in their fundamental nature, the changes which result from the spontaneous tendencies of humanity. An attempt to introduce any social factor which is not essentially conformable to the contemporary civilisation, will result, if not in serious disturbance, at least in a mere waste of effort. Any proposal of social action, therefore, should repose on a previous analysis of those spontaneous tendencies, and this is possible only by the historic method. Let me give an example from an economic subject which happens just at present to offer a special interest. Attention has been called by Sir Henry Maine, to the general law that property in land originally belongs, not to individuals, nor even to families in the modern sense, but to larger societies, and that in the progress of mankind there is a natural movement from common to separate ownership. This historical result has been elaborated by a number of independent inquirers; and M. de Laveleye in a work of great research has brought together a vast mass of evidence, both establishing the main fact, and exhibiting the varied features which the common evolution has assumed in different countries. There is much that is attractive in particular sides of this early organisation of territorial property, and M. de Laveleye has yielded to the charm, so far as to regret its disappearance in the developed communities of the West, though he stops short of recommending what others have suggested—namely, a return to the primitive constitution, by replacing the commune in the possession of the soil. Indeed, he himself, by establishing the progressive spontaneous tendency of society towards individual property, shows such a project to be a dream, and banishes it from the field of practical economic policy. From the general appearance of this collective ownership in an early stage of society, it is sometimes argued that it is a *natural* system; but the historic method shows that it is just as natural that it should disappear at a more advanced stage. Serving useful ends in the former period, it becomes in the latter an obstruction to progress by stereotyping agricultural art, and impeding that individual initiative which is an indispensable condition of social improvement. The safe prediction is that the Swiss *Allmend*, the Russian *Mir*, and other forms of collective ownership will disappear, and that personal appropriation will become the universal rule. The social destination of property in land, as of every species of wealth, will be increasingly acknowledged and realised in the future; but that result will be brought about, not through legal institutions, but by the establishment and diffusion of moral convictions.

There have been great differences of opinion as to the method of economic inquiry pursued by Adam Smith. Mr. Lowe will have

it that his method was deductive—that he had the unique merit of having raised the study of a branch of human transactions to the dignity of a deductive science. At the same celebration at which this opinion was put forward, Professor Thorold Rogers expressed his surprise that anyone should entertain such a view. It seemed to him clear that Adam Smith was pre-eminently an inductive philosopher. Mr. Rogers has edited the “Wealth of Nations,” and in doing so has verified all the references; and what strikes him is the extraordinary wideness of the reading from which Smith drew his inferences. The work, he says, is full of facts. It is interesting to observe that David Hume made just the same remark on the book at the time of its publication:—“It has depth,” he said, “and ‘solidity, and acuteness, and is so much illustrated with curious ‘facts, that it must take the public attention.’”

Of the two views thus advanced by Mr. Lowe and Mr. Rogers, the latter seems to me much the more correct. That the master tendency of Smith's intellect was the deductive, or that it is at the deductive point of view that he habitually places himself, seems to me plainly at variance with fact. Open his book anywhere, and read a few pages; then do the same with Ricardo's principal work, and observe the difference of the impression produced. Under the guidance of Ricardo you are constantly, not without misgivings, following certain abstract assumptions to their logical results. In Smith you feel yourself in contact with real life, observing human acts and their consequences by the light of experience. Of course deduction is not wanting; but it is in the way of verification; the facts are interpreted from the nature and circumstances of men in general, or particular groups of men. Sagacious observation and shrewd comment go hand in hand.

Adam Smith, besides giving generally a large place to induction, opened several lines of interesting historical investigation, as notably in his third book, which contains a view of the economic progress of modern Europe as shaped by political causes. But historic inquiry was neglected by his successors, with a partial exception in the case of Malthus, and the *à priori* deductive method became dominant chiefly by the influence of Ricardo. Professor Price objects to this method as too scientific; but, as Mr. Leslie has said, what ought to be alleged respecting it is that it is unscientific, because ill adapted for the successful investigation of the class of phenomena with which it deals. Setting out from propositions involving the loose abstractions of which I have spoken, it arrives at conclusions which are seldom corrected by consideration of conditions which were at first, for simplicity, omitted in the premises. And these conclusions can in general not be directly confronted with experience for the purpose of verification, for they are hypothetical

only ; all that they affirm is, that one particular tendency of human nature will, in the absence of other factors, produce, not a resultant phenomenon, but a tendency of a certain character, which will be one component of the resultant.

I am not concerned nor disposed to deny that useful general indications have been gathered by inference of this kind. But it is evidently a very unsafe process, even in purely economic matters, especially when consequences are pushed into any degree of detail. Careful thinkers have a profound distrust of lengthened deductions in economic inquiries. When it is argued that A must lead to B, and B again to C, and so on through a long chain of results, they assume in self-defence a sceptical attitude of mind, and often feel more than half convinced that what is going on is a feat of logical sleight of hand. And this suspiciousness is, I think, reasonable ; for we are not here on the same ground as in mathematics, where protracted deductions are always safe, because we can be sure that we have before us at every step all the determining data, and each proposition successively used is universally true. But as the most that the economist can confirm is a set of tendencies, the certainty of his conclusions is plainly weakened in a rapidly increasing ratio by the multiplication of links, there being always a possibility that the theorems applied in the course of the demonstration may be subject to special counteractions or limitations in the case we are considering.

I observed before that Mill betrayed some uncertainty of view as to the precise relation of economic inquiries to general sociology. As to the proper method of the social science also, he appears to me not strictly consistent with himself. That method he declares, in so many words, to be the direct (or *à priori*) deductive. Yet elsewhere he as plainly agrees with Comte, that in the general science of society, as distinguished from its separate departments, nothing of a scientific character is possible except by the inverse deductive—as he chooses to call the historical—method. In one place he seems to assert that the general course of economic evolution could be predicted from the single consideration of the desire of wealth. Yet again he admits that no one could determine *à priori* from the principles of human nature and the general circumstances of the race the order in which human development takes place. Now this involves the conclusion, that the laws of economic progress—like all dynamic laws of sociology—must be ascertained by observation on the large scale, and only verified by appeal to the laws of the external world and human nature : in other words, that the right method for their study is the historical.

I hope it is not inconsistent with a profound respect for the eminent powers and high aims of Mill, to say that he appears to me

never to have extricated himself completely from the vicious habits in regard to sociological method impressed on him by his education. His father had the principal part in the formation of his mind in his early years. Now whatever were the intellectual merits of James Mill, his mode of thinking on social subjects was essentially metaphysical, as opposed to positive. Through him, as well as directly, John Mill, came under the influence of Bentham, of whom, whilst fully recognising his services, we may truly say that he was one of the most unhistorical of writers, building most, I mean, on assumed *à priori* principles, and sympathising least with the social past, in which he saw little except errors and abuses. It is strong evidence of the natural force of Mill's intellect that he more and more, as he advanced towards maturity, shook himself loose of the prejudices of his early *entourage*. On every side, not even excluding the æsthetic, he grew in comprehensiveness, and his social and historic ideas in particular became wider and more sympathetic. The publication of the letters addressed to him by Auguste Comte has revealed more fully, what could already be gathered from his writings, that the study of that eminent thinker's first great work happily concurred with and aided his spontaneous tendencies. Hence in his economic studies he broke away in many respects from the narrow traditions of the reigning English school, and by opening larger horizons and discrediting rigid formulas, did much to prepare the public mind for a more complete as well as truly scientific handling of these subjects. But though the interval between his father and himself represents an immense advance, yet never in regard to method did he, in my opinion, ever obtain a perfectly normal attitude. Whilst in his "logic" he criticised with just severity what he, not very happily, calls the geometrical mode of philosophising practised by the Benthamites in political research, he approves what is essentially the same course of proceeding in economic inquiry; and whilst protesting against the attempt to construct a special science of the political phenomena of society apart from general sociology, he yet, with whatever restrictions and qualifications, accepts the separate construction of a science of its industrial phenomena. His ambition in his work on political economy was, as may be seen from the preface, to replace the "Wealth of Nations" by a treatise which, whilst more uniformly correct on points of detail, should be in harmony with contemporary social speculation in the widest sense. Admitting fully the great merits of the book, I yet must hold that, chiefly from the absence of any systematic application of the historic method, he has not succeeded in attaining this end. The presentation of what is solid and permanent in the work of the economists, in relation with the largest and truest views of general sociology, is, in my judgment, a task which still remains to be accomplished.

The tendencies of the new school with respect to method are sufficiently indicated by the names of the realistic and the historical by which it designates itself. It declares, in the words of Brentano, the description of political economy by the so-called orthodox writers as a hypothetic science, to be only a device to cloak its dissonance with reality; it affirms that much of the current doctrine is made up of hasty generalisations from insufficient and arbitrary premises, and proposes to derive a better doctrine (*aus den Empfarungen des Lebens*) from the actual experience of life. It sets out, says Held, from observed facts, and not from definitions which often serve only to mask foregone conclusions. It aims at describing objectively present relations, not as immutable necessities, but as products of a gradual historical development in the past, and susceptible of gradual modification in the future. "Its philosophical method," says Mr. Leslie, "must be historical, and must trace the connection "between the economical and the other phases of national history." In these tendencies the rising school seems to me to be in harmony with all that is best in the spirit of the most advanced contemporary thought.

Lastly has to be noticed the too absolute character of the theoretic and practical conclusions of the political economists. It follows (as I have already indicated) from their *à priori* and unhistoric method that they arrive at results which purport to apply equally to all states of society. Neglecting the study of the social development, they tend too much to conceive the economic structure of society as fixed in type, instead of as undergoing a regular modification in process of time, in relation to the other changing elements of human condition. Similar consequences arose in other branches of sociological inquiry from the prevalence of unhistoric methods. But reforms have been largely carried into effect from the increasing recognition of the principle, that the treatment of any particular aspect of society must be dominated by the consideration of the general contemporary state of civilisation. Thus, in jurisprudence there is a marked tendency to substitute for the *à priori* method of the Benthamites a historical method, the leading idea of which is to connect the whole juristic system of any epoch with the corresponding state of society; and this new method has already borne admirable fruits, especially in the hands of Sir Henry Maine. Again, the old search after the best government, which used to be the main element of political inquiry, is now seen to have been radically irrational, because the form of government must be essentially related to the stage of social development and to historic antecedents, and the question, what is best? admits of no absolute answer.

Mill admits that there can be no separate science of government; in other words, that the study of the political phenomena

of society cannot be conducted apart, but must, in his own words, stand part of the general science of society, not of any separate branch of it. And why? Because those phenomena are so closely mixed up, both as cause and effect, with the qualities of the particular people, or of the particular age. Particular age must here mean the state of general social development. But are not economic phenomena very closely bound up with the particular state of development of the society which is under consideration? Mr. Bagehot, indeed, takes up the ground that political economy is "restricted to a single kind of society, a society of competitive commerce, such as we have in England." And Mill himself, whilst stating that only through the principle of competition, as the exclusive regulator of economic phenomena, has political economy any claim to the character of a science, admits that competition has, only at a comparatively modern period, become in any considerable degree the governing principle of contracts; that in early periods transactions and engagements were regulated by custom, and that to this day in several countries of Europe, in large departments of human transactions, custom, not competition, is the arbiter.

The truth is, that in most enunciations of economic theorems by the English school, the practice is tacitly to presuppose the state of social development, and the general history of social conditions, to be similar to that of modern England; and whenever this supposition is not realised, those theorems will be found to fail.

The absolute character of the current political economy is shown, not only by this neglect of the influence of the general social state, but in the much too unlimited and unconditional form which is given to most of its conclusions. Mr. Fawcett has, in his latest publication, animadverted on this practice; thus, he points to the allegation often met with, that the invention of machines must improve the position of the workman, the element of time being left out of account; and the assertion that the introduction of free trade in the United States could not injure the American manufacturer. But this lax habit cannot, I believe, be really corrected apart from a thorough change of economic method. As long as conclusions are deduced from abstract assumptions, such as the perfectly free flow of labour and capital from one employment to another, propositions which only affirm tendencies will be taken to represent facts, and theorems which would hold under certain conditions will be announced as universally true.

The most marked example the economists have afforded of a too absolute conception and presentation of principle, both theoretical and practical, is found in the doctrine of *laissez faire*. It might be interesting, if time permitted, to follow its history in

detail. First inspired by *à priori* optimistic prepossessions, it long served a useful purpose as an instrument of combat against the systematic restrictions with which a mistaken policy had everywhere fettered European industry. But, from the absolute manner in which it was understood and expressed, it tended more and more to annul all governmental intervention in the industrial world, even when intended not to alter the spontaneous course of industry, but only to prevent or remedy the social injustices and other mischiefs arising from the uncontrolled play of private interests. Experience and reflection, however, gradually surmounted the exaggerations of theory. The community at large became impatient of *laissez faire* as an impediment and a nuisance; statesmen pushed it aside, and the economists, after long repeating it as a sacred formula, themselves at last revolted against it. So far has the reaction proceeded, that Professor Cairnes has declared the doctrine employed in the phrase—namely, that the economic phenomena of society will always spontaneously arrange themselves in the way which is most for the common good—to be a pretentious sophism, destitute of scientific authority, and having no foundation in nature or fact.

Let me now recapitulate the philosophical conclusions which I have been endeavouring to enforce. They are the following:—

(1) That the study of the economic phenomena of society ought to be systematically combined with that of the other aspects of social existence; (2) That the excessive tendency to abstraction and to unreal simplifications should be checked; (3) That the *à priori* deductive method should be changed for the historical; and (4) That economic laws and the practical prescriptions founded on those laws should be conceived and expressed in a less absolute form. These are, in my opinion, the great reforms which are required both in the conduct of economic research, and in the exposition of its conclusions.

I am far from thinking that the results arrived at by the hitherto dominant economic school ought to be thrown away as valueless. They have shed important partial lights on human affairs, and afforded salutary partial guidance in public action. The task incumbent on sociologists in general, or such of them as specially devote themselves to economic inquiries, is to incorporate the truths already elicited into a more satisfactory body of doctrine, in which they will be brought into relation with the general theory of social existence, to recast the first draughts of theory, which, however incomplete, in most cases indicate real elements of the question considered, and to utilise the valuable materials of all kinds which their predecessors have accumulated. Viewed as provisional and preparatory, the current political

economy deserves an approbation and an acceptance to which I think it is not entitled, if regarded as a final systemisation of the industrial laws of society.

Returning now from our examination of the condition and prospects of economic study in the general field of human knowledge to the consideration of its position in this association, what seems to follow from all I have been saying? I do not take into account at all the suggestion that that study should be removed from what professes to be a confederation of the sciences. As has been well said, the omission from the objects of this body of the whole subject of the life of man in communities, although there is a scientific order traceable in that life, would be a degradation of the association. If the proper study of mankind is man, the work of the association, after the extrusion of our section, would be like the play with the part of the protagonist left out. What appears to be the reasonable suggestion, is that the field of the section should be enlarged, so as to comprehend the whole of sociology. The economic facts of society, as I have endeavoured to show, cannot be scientifically considered apart; and there is no reason why the researches of Sir Henry Maine, or those of Mr. Spencer, should not be as much at home here as those of Mr. Fawcett or Professor Price. Many of the subjects, too, at present included in the artificial assemblage of heterogeneous inquiries known by the name of anthropology, really connect themselves with the laws of social development; and if our section bore the title of the sociological, studies like those of Mr. Tylor and Sir John Lubbock concerning the early history of civilisation would find in it their most appropriate place. I prefer the name sociology to that of social science, which has been at once rendered indefinite and vulgarised in common use, and has come to be regarded as denoting a congeries of incoherent details respecting every practical matter bearing directly or remotely on public interests, which happens for the moment to engage attention. There are other societies in which an opportunity is afforded for discussing such current questions in a comparatively popular arena. But if we are to be associated here with the students of the other sciences, it is our duty, as well as our interest, to aim at a genuinely scientific character in our work. Our main object should be to assist in fixing theoretic ideas on the structure, functions, and development of society. Some may regard this view of the subject with impatience, as proposing to us investigations not bearing on the great and real needs of contemporary social life. But that would be a very mistaken view. Luciferous research, in the words of Bacon, must come before fructiferous. "Effectual practice," says Mr. Herbert Spencer, "depends on superiority of ideas; "methods that answer are preceded by thoughts that are true."

And in human affairs, it is in general impossible to solve special questions correctly without just conceptions of *ensemble*—all particular problems of government, of education, of social action of whatever kind, connect themselves with the largest ideas concerning the fundamental constitution of society, its spontaneous tendencies, and its moral ideal.

I have as yet said nothing of statistics, with which the name of this section at first exclusively connected it, and which are still recognised as forming one of its objects. But it is plain that though statistics may be combined with sociology in the title of the section, the two cannot occupy a co-ordinate position. For it is impossible to vindicate for statistics the character of a science; they constitute only one of the aids or adminicula of science. The ascertainment and systematic arrangement of numerical facts is useful in many branches of research, but, till law emerges, there is no science; and the law, when it does emerge, takes its place in the science whose function it is to deal with the particular class of phenomena to which the facts belong. We may ascertain and arrange meteorological facts of this kind as well as sociological; and if they help us to the discovery of a law, the law belongs to meteorology, as in the other case, to sociology. More frequently social statistics are used, not to assist us towards scientific generalisations, but as subservient to the direct practical action of the statesman by indicating the condition of the body politic. From this point of view, they may be compared with a description of the condition, pathological or otherwise, of a particular living organism for hygienic or diagnostic purposes. The questions to be asked by the observer are dictated, and the interpretation to be put upon the answers is supplied, in the latter case by physiology, in the former by sociology. But as the facts observed and recorded are not general but individual, we are here in the domain of practical therapeutics or practical politics—not in that of science properly so called.

But though the character of a science cannot be claimed for statistics, it is obvious that if the views I have advocated as to the true nature and conditions of economic study should prevail, the importance of statistical inquiries will rise as the abstract and deductive method declines in estimation. Senior objected to the saying that political economy was *avide de faits*, because, according to him and the school of Ricardo in general, its work was mainly one of inference from a few primary assumptions. But if the latter notion is given up, every form of careful and conscientious search after the realities of the material life of society, in the present as in the past, will regain its normal importance. This search must, of course, be regulated by definite principles, and

must not degenerate into a purposeless and fortuitous accumulation of facts; for here, as in every branch of inquiry, it is true that "*Prudens interrogatio est dimidium scientiæ.*"

I do not expect that the views I have put forward as to the necessity of a reform of economic studies will be immediately adopted either in this section or elsewhere. They may, I am aware, whilst probably in some quarters meeting with at least partial sympathy, in others encounter determined hostility. And it is possible that I may be accused of presumption in venturing to criticise methods used in practice, and justified in principle, by many distinguished men. I should scarcely have undertaken such an office, however profoundly convinced of the urgency of a reform, had I not been supported by what seemed to me the unanswered arguments of an illustrious thinker, and by the knowledge that the growing movement of philosophic Europe is in the direction he recommended as the right one. No one can feel more strongly than myself the inadequacy of my treatment of the subject. But my object has not been so much to produce conviction as to awaken attention. Our economists have undeniably been slow in observing the currents of European thought. Whilst such foreign writers as echo the doctrines of the so-called orthodox school are read and quoted in England, the names of those who assume a different and more independent attitude are seldom heard, and their works appear to be almost entirely unknown. But the fence of self-satisfied routine within which in these countries we formerly too often entrenched ourselves is being broken down at every point; and no really vital body of opinion can now exist abroad without speedily disturbing our insular tranquillity. The controversy, therefore, as to the methods of economic research and its relations to sociology as a whole, cannot long be postponed amongst us. It has, in fact, been already opened from different sides by Mr. Leslie and Mr. Harrison, and it is desirable that it should arrive as promptly as possible at a definite issue. If I have done anything to-day to assist in launching this great question on the field of general English discussion, the purpose I have set before me will have been abundantly fulfilled.

*The STATISTICS of CANADA.**By* ALFRED EDMUND BATEMAN, ESQ.

[Read before Section F of the British Association, at Dublin, August, 1878.]

I HAVE lately had occasion to consult the Official Statistics of the Dominion of Canada, and it has struck me that a short paper on the subject would not be unacceptable at this meeting which is being held in the capital of that division of the United Kingdom with which Canada is most intimately connected, and to which she is indebted for her present most able governor.

An additional excuse for this paper is to be found in the fact that the official statistics of this important colony are much less widely known than those of our other great group of colonies—Australia.

The “Colonial Statistical Volume and Abstract,” compiled by the Board of Trade, contain information necessarily in a somewhat brief form, respecting all the colonies, but as regards Australia, a complete and detailed account of every branch of official statistics is to be found in the “Statistical Registers,” published in each colony, which also contains an abstract of the principal facts for a series of years, usually from the date of the establishment or separate existence of the colony, and in addition the principal results are communicated as soon after the end of the year as possible between the different colonies, and an abstract for the whole of Australasia is prepared from these materials. Moreover, quarterly accounts of the trade and revenue are published in most of the Australian colonies, and are very regularly quoted in our newspapers.

In Canada the official statistics are contained in no less than eight thick volumes of parliamentary papers which are presented each session, but there is no compilation similar to the Australian statistical registers. It is true that statistical details are circulated in the letters and statements put forth by the emigration agents of the Dominion, but such sources of information are often considered open to suspicion from their supposed tendency to give undue prominence to favourable features, and to ignore if not suppress the reverse.

In the eight Canadian volumes comparatively few branches of statistics have been adequately treated up to the present time, such important subjects as Birth, Deaths, and Marriages, Educational

Statistics, Crime, Railways and Telegraphs, having been till lately omitted. It is satisfactory, however, to find that returns are now required from the various railway companies, and criminal statistics are also in course of preparation. The department of the Minister of Agriculture seems likely to take the most important part in the new statistical work, and it is in that department that the elaborate tables relating to the decennial census are compiled. The fifth and last volume of the census of 1871 is now nearly completed and these volumes contain a very large amount of information as to the state of the Dominion.

In a country where the population is so scattered, it is no doubt easier to have one exhaustive inquiry every ten years than to institute yearly returns, but the latter are in many respects to be preferred, as affording data for detecting errors by the comparison of previous years. Moreover, the necessity for so many details to be filled in at one time is liable to weary the public who have to contribute the information, and may cause the work to be carelessly done. An immense amount of trouble has however been taken in compiling the fourth volume of the last census, which contains the population of each province from their earliest colonisation. The Paris archives have among others been successfully searched, and record the first settlements of New France and of Acadia, and the sad story of the removal of the Acadians in 1755 from what is now Nova Scotia.

The earliest enumeration of the population, which was taken at the middle of the seventeenth century, shows the population of the Province of Quebec, then known as New France, to have been 3,215 in 1665, and it had increased to 13,695 in 1695. In 1726 it had doubled to 29,396, and in 1736 it was 39,000, the sexes being almost equally numerous.

But to come back to more recent times, it appears that the census of Ontario and Quebec taken in 1861 was much in excess of the true numbers, one principal cause being the double enumeration of all persons absent from their domicile at the taking of the census. It has hence happened that the figures for the census of 1871 fail to show nearly the results expected, even with a very moderate allowance for increase of birth over deaths and for immigration.

The rate of mortality shown by the single return of births and deaths taken with the census of 1871, is only 14 per thousand, a very low figure, which the Canadian authorities state to be much below the truth. The birth-rate is 34 per thousand. If however we take the births at 35 per thousand and the deaths at 21, and add the increase for recorded immigration of settlers, we may estimate the population of the Dominion at the present time at rather more than 4 millions and a quarter, namely:—

Population at date of census in 1871.....	3,686,000
Increase of births over deaths for seven years.....	400,000
„ by reported settlers in Dominion	200,000
Total	<u>4,286,000</u>

A writer of considerable eminence, Mr. Wilson, has recently published some valuable essays on the resources of modern countries, in which Canada has been rather roughly handled—more so perhaps than is deserved, and I should be glad to consider for a few moments the most recent figures relating to the trade and products of Canada in order to see what is the real state of the case. Taking first the amount of the imports and exports since the Dominion was first established, or rather more than ten years, we notice in Appendix A that the imports have increased from 15 millions sterling* to more than 20 millions, and the exports from 12 millions to nearly 16 millions. It is true that the figures of the last two or three years show a considerable falling off from the previous busy years, but this decrease has not been confined to Canada, complaints of bad trade having been the rule and not the exception all over the world. As regards the exports especially there is every reason to believe that there will be a large development of the trade in live and dead meat between Canada and this country as soon as the depression in our manufacturing centres passes away, and even now as many cattle and three times as many pigs have come to us from Canada in the first six months of the present year as were received in the whole of 1877.

In Appendix A we notice also that the tonnage of shipping entered and cleared seaward has continued to show a steady increase, allowing for the proportion of the shipping between the different provinces, which is now counted only as coasting trade. The total sea-going tonnage now amounts to more than 6 millions, or about as much as the tonnage entered and cleared in all the Australian colonies put together, and in the case of the latter the intercourse between the different colonies is all included. Besides the sea-going tonnage, much shipping is engaged between Ontario and Quebec and the United States, the entries and clearances having been 4 millions and a half tons in 1876-77. Taking next the shipping belonging to the Dominion, and employed there or elsewhere, we find a satisfactory and steady increase in the last few years, the Dominion owning now more than a million and a quarter tons of shipping, which must represent no inconsiderable yearly profit.

* I have in all cases converted dollars into sterling at the official rate of 4s. 2d.

The produce of the fisheries too amounts now to a large sum, between 2 and 3 millions sterling, as compared with $1\frac{1}{2}$ million in 1870, and few writers lay sufficient stress on this important industry by which so much wealth is produced and distributed.

The mineral production of Canada, especially of the province of Nova Scotia, is of some value, nearly a million tons of coal having in some years been raised in that province, though at the present time the depression in trade has caused a falling off in the Canadian and American demand. In Vancouvers Island more than 150,000 tons of coal were raised last year. In British Columbia also the coal fields are very extensive, but till the railway communication is in a more forward state, little can be done in working the coal.

The census of 1871 contains among other interesting matter, particulars of the manufactures of the Dominion, which show the number of persons employed in industries to have been 188,000 in receipt of wages, amounting to more than 8 millions sterling, or a weekly average of about 17s. 6d., a high rate considering that a large number of females and of persons under sixteen years, tend to lower the average. The capital invested in these industries was more than 16 millions sterling, and the value of the last year's produce about 46 millions.

Turning now to the most important source of wealth to the Dominion—agriculture—we find that nearly 12 millions of acres were under crop in 1870-71, besides 5 millions of pasture, and that 90 million bushels of corn and grain were grown. As the exports of corn have increased in the last five years, we may safely assume the present acreage under corn crops to be very considerable, and the next census will doubtless show very satisfactory figures in this respect, and also as regards cattle and sheep, of which the Dominion possessed respectively $2\frac{1}{2}$ millions and 3 millions at the last census. Such widely spread and growing industries as the making of butter and cheese and of maple sugar, must not be overlooked, their yearly production representing in value more than 3 millions sterling, while the other agricultural products, such as potatoes, amounting to 47 million bushels, hops, tobacco and various fruits, make up a very large sum.

To turn to another subject, the deposits in the Government savings banks show satisfactory results of late years, in spite of the prevalent commercial distress, the invested capital having increased from little over a quarter of a million sterling ten years ago, to more than $1\frac{1}{2}$ million in the middle of 1877. In the years 1874-76 the withdrawals exceeded the deposits, but in the last-recorded year the latter have again regained their normal preponderance.

Up to this point the figures I have quoted have been all of a

favourable character, but the railway statistics to which we are now coming are quite the reverse, and in fact the results which they show are of so unfortunate a nature, that most writers in Canada (Mr. Wilson among the number) are quite overcome by them, and consider even the existence of the Dominion to be imperilled, if not absolutely doomed, by the financial disasters of the railway interests of Canada.

The railway returns have only lately been added to the official statistics of Canada, and are as yet very imperfectly rendered, but from the returns lately issued, we gather that the mileage of railways in operation on 30th June, 1877, was 5,346; the capital raised by shares, loans, and subventions having amounted to nearly 68 millions sterling. As the gross receipts for the year were less than 4 millions, and the expenses about $3\frac{1}{4}$ millions, less than three quarters of a million is left to pay interest on the cost. This suffices to pay an average of between 4 and 5 per cent. on the bonded debt, leaving hardly anything for the ordinary and preference share capital, or for the Government and municipal advances.

Ill-advised lines of railway and extravagant execution of the work, sparse population and the competition of the American railways and canals, are probably the true causes of this unfortunate state of things, and Mr. Wilson has no belief in any improvement being likely to result from the completion of the contemplated Pacific Railway. But it is possible to attach too much importance to one means of communication, and leave out of sight the immense advantages that Canada possesses in her system of inland navigation.

The Dominion and provincial debts have been of course very much swollen by the heavy expenditure on railways, but they can hardly be considered overwhelming. The debts of the Dominion and provincial Governments, deducting the invested assets on the 30th June, 1877, amounted to $27\frac{1}{2}$ millions, or rather less than the combined debts of New South Wales and Victoria; the population of the two latter colonies being only $1\frac{1}{2}$ million, against nearly three times as many people in Canada. In addition to the public debt, loans have been raised by many of the municipalities, but the money has usually been employed in reproductive public works, such as waterworks, roads, &c., and an examination of their accounts, for which I have not space, would, I think, lead to the conclusion that their financial condition compares very favourably with the chief cities of the United States. The Canadian debt, as shown in Appendix B, has indeed increased considerably of late years, having been 16 millions only in 1868. The expenditure in capital account has however exceeded the increase of debt in the last ten years by more than 2 millions sterling, the balance having

been paid out of revenue, and this sum would have been much larger but for the diminished customs receipts of the last three years which have caused a serious deficit.

Appendix B also shows the consolidated revenue and expenditure of the past ten years, and it will be observed that the expenditure has exceeded the revenue only in the last two years—a fact which gives some ground for the inference that it is the last two years of depression that are abnormal, and likely to be transitory, and not, as Mr. Wilson gloomily forebodes, the eight more favourable years.

Besides the strictures which have been raised respecting the financial condition of Canada, the climate of the Dominion has fallen in for rather more abuse than it deserves. Granting that the winters are severe and the summers very short, and the range of temperature (more than 100° in the year) is greater than in any other colony, yet the seasons are usually propitious enough to make the farmers a prosperous class, and the well known vigour of the Canadian race should dispel any suspicion of the climate not being conducive to health.

I have in this brief paper omitted many important points and treated others very imperfectly, but if I have succeeded in drawing attention to the social state of Canada, and leading to a fairer view being taken both of her failures and successes, I shall be amply content, and I am sure you will all join me in wishing Godspeed to her as well as to the new Governor-General and his illustrious wife.

APPENDIXES.

A.—Abstract of the Shipping and Trade of Canada in each of the Ten Years ended 30th June, 1868-77.

[000's omitted in money columns.]

Years ended 30th June.	Shipping.		Trade.	
	Belonging to Dominion.	Entered and Cleared from, and to, the Sea.	Imports.	Exports.
	Tons.	Tons.	£	£
1868		4,319,321	15,304,	11,993,
'69		4,996,565	14,670,	12,599,
'70		5,084,873	15,586,	15,328,
1871		5,116,033	20,019,	15,453,
'72		5,946,704	23,215,	17,217,
'73	1,073,718	6,085,535	26,669,	18,706,
'74	1,158,363	6,051,361	26,711,	18,615,
'75	1,205,565	5,329,208 *	25,640,	16,226,
1876	1,260,893	5,910,764	19,418,	16,868,
'77	1,310,000	6,644,822	20,693,	15,807,

* Exclusive of British Columbia.

B.—Consolidated Revenue and Expenditure of Canada (distinguishing the Receipts of the Customs and Excise), and Amount of Public Debt in each of the Ten Years ended 30th June, 1868-77.

[000's omitted.]

Years ended 30th June.	Consolidated Revenue.				Consolidated Expenditure.	Surplus (+) or Deficit (-)	Public Debt (Liabilities, Deducting Assets).
	Customs.	Excise.	Other Sources.	Total.			
	£	£	£	£	£	£	£
1868	1,787,	625,	440,	2,852,	2,810,	+ 42,	15,783,
'69	1,723,	564,	709,	2,996,	2,925,	+ 71,	15,804,
'70	1,945,	754,	533,	3,232,	2,989,	+ 243,	16,294,
1871	2,467,	895,	666,	4,028,	3,255,	+ 773,	16,189,
'72	2,663,	986,	665,	4,314,	3,665,	+ 649,	17,122,
'73	2,700,	929,	707,	4,336,	3,995,	+ 341,	20,802,
'74	2,984,	1,165,	894,	5,043,	4,857,	+ 186,	22,568,
'75	3,198,	1,056,	881,	5,135,	4,940,	+ 195,	24,168,
1876	2,672,	1,159,	875,	4,706,	5,102,	- 396,	25,948,
'77	2,614,	1,030,	951,	4,595,	4,900,	- 305,	27,752,

Note.—British Columbia and Vancouver's Island were added to the Dominion in July, 1871, and Prince Edward Island in July, 1873.

*ADDRESS of the PRESIDENT of the DEPARTMENT of ECONOMY and
TRADE of the NATIONAL ASSOCIATION for the PROMOTION of SOCIAL
SCIENCE, at the TWENTY-SECOND ANNUAL CONGRESS held at
CHELTENHAM, in October, 1878. By PROFESSOR BONAMY PRICE.*

POLITICAL economy at the present hour is undergoing a crisis. Both in the region of thought, amongst its teachers and its students, as well as in the great world, in the practical life of mankind, it is passing through a revolution, and no matter more grave for the interests of humanity can easily be conceived. It calls for the closest and the most anxious attention from every friend of the happiness of human beings. It is no common knowledge which political economy has to unfold. It would be difficult to name any other form of instruction which so directly affects the welfare both of nations and of individuals. It is summoned to perpetual conflict, for the enemy against which it is called to do battle is undying. The evils which it seeks to destroy are so deeply rooted in the very essence of human nature that no force of argument, no exposition of the truth, can ever completely exterminate them. They crop up everlastingly from the bed of narrow-sightedness and selfishness which overlies the industrial and commercial life of nations. If then the power whose office it is to contend against these undying tendencies is weakened, disastrous indeed must be the consequences.

Many and great have been the triumphs which political economy won in the past, and proportionally large the services which it rendered to mankind. Restriction of colonial trade to the mother-country has been abolished, export duties and bounties swept away, navigation laws repealed, oppressive interference with the freedom of labour expunged from the statute book, laws which cruelly injured both the poor and society amended, inconvertible currencies which forced the community to accept pieces of paper as the equivalents of costly metal banished, guilds and other contrivances for conferring unjust advantages on particular men done away with, taxes on the raw materials of industry extinguished, and—greatest and most valuable of all—protection abandoned, and perfect freedom of trade enthroned in its place. It may be that some of these noble deeds were not achieved in the name of political economy, for that name may not yet have been sounded in human ears, but they were accomplished by its spirit; by the same thoughts as those

it inspires, by the same intelligence, whether or not it knew that it was economical. Political economy was a power amongst men, acting with the energetic vigour and exploring analysis of that observation and good sense which are its essence, long before it was registered in books in a systematic and special form. And so vast was the benefit which society felt itself to have received from this process, that when political economy in course of time was born into the world, its authority gradually rose to high respect, its teachers were honoured, and a confident hope was spread abroad of further progress still to be achieved.

But now if we turn our eyes to the nations of the world, what is the picture which we find? Most of the gains won in the past are endangered. The mercantile theory still survives with great vitality in the language of the city and of commercial exchanges. The nature of the commonest of machines, money, is not understood by large masses of traders; favourable exchanges are still spoken of as the surest indicators of prosperous trade; a very eminent French statesman a few years ago deliberately proposed duties on raw materials; currencies composed of promises to pay which are not paid insidiously work their way into divers countries, although America has set a noble example of homage done to good sense. Bounties still maintain themselves in some highly civilised nations. Even the distinguishing glory of political economy, which Archbishop Whately declared to have rendered the greatest of all services to mankind, free trade, is losing ground in many quarters. One of the greatest of empires, though sorely in need of financial progress, is deeply entrenched behind the walls of protection. The nation which accounts itself the most progressive of mankind sentences itself to diminished trade, reduced wealth, and lowered comforts by enriching particular traders at the expense of the whole community. Victoria, at the instigation of an ignorant democracy, breaks the financial uniformity of a mighty empire, and loads the merchandise of the central State with harassing duties. It is rumoured of one of the foremost statesmen of Europe that to procure resources for a military empire he is preparing to treat the voice of political economy with contempt, and to inflict protective duties on foreign goods. And with a feeling of sorrow be it said, it is whispered that the weight of commercial depression is awakening a feeling of disloyalty in England to the principle of free trade under the plea that it is the duty of the English people to tax themselves in order to keep distressed English industries alive.

A still more painful spectacle presents itself to view on every side. Capitalists and workmen are the joint producers of that wealth which is necessary for the existence and the civilisation

of human beings; their work, its true methods and principles, are the specific field of economical study, the region which it is its special office to enlighten. These two classes comprise incomparably the largest portion of mankind. Political economy shows their indispensableness to one another, that the one cannot exist without the other. It shows further, that harmonious co-operation in their joint work is the state to which the facts of human nature and of human life call them, and that such reciprocal goodwill produces the greatest advantages for both. Is this the relation between them, that the feeling which now presents itself to our view? Alas! millions in every country are persuaded that nature has placed them in perpetual war with their fellow-beings—that those who labour and those who supply the means for labouring are necessarily, by the law of their existence, the enemies of each other—that what one gains the other loses, and that the rewards of the efforts they both make must be divided between them by combat. Hundreds of thousands of pounds of lost wages, protracted poverty, misery of wife and children, overcrowded work-houses, starvation even, fail to convince their ignorant victims of the unnatural delusion of the policy of strife.

Meanwhile, where is political economy? When the cholera or the yellow fever visits a country, there is a rush for help and advice to its physicians. The ravages of the plague are seen and terrify; recourse is had instantaneously to the men that know. In the war of classes political economy is absent. The man who thinks he has suffered wrong and seeks redress from law calls in his lawyer, and submits with entire obedience to his counsels. But who sends for a professional economist in a strike? Who asks his advice as that of one who is acquainted with the conditions of the problem at issue, and can point out the way to justice and fair dealing? No unionist on strike will ask a political economist what the policy of his union ought to be; no farmer will beg him to point out what is the land which pays no rent, that he may be able, by its help, to calculate what rent he ought to pay. And should the dangers of the hour ever impel him to demand the aid of economical instructors, what will he find? Discordant opinions, theory and counter-theory, unintelligible language which sounds as jargon, grand deductions of which he does not understand a word, and all this on matters which belong to his everyday life, and which he feels his untutored common sense can judge as well as his scientific but incomprehensible instructor. Thus in the city or the factory, in the commercial port or the manufacturing town, the remark is never heard, "political economy says so and so and I " must act according to its authority." The prosperity and happiness of nations depend on the processes which political economy has for

its mission to explain: their fortunes hang on practising good political economy; able and accomplished men have zealously toiled to build up a lofty structure of economical science, and yet, with sorrow be it said, chaos and weakened authority prevail in it to a degree unequalled in any other branch of human knowledge.

Such are the backslidings into which the world of action has fallen, and such the loss of influence into which the expounders of political economy have fallen. And be it carefully observed, this is no case of error being superseded by truth, of a Ptolemaic doctrine being made to give way to a Copernican. Political economy is not refuted and thrust aside: it has simply become discredited. What then, it must now be asked, are the causes of this unhappy relapsing into mistaken and mischievous practices? They are in the main two. In the first place, the tendency to practise bad instead of good political economy is deeply seated in human nature. It is a force which is ever at work, which knows no rest. Selfish and noble feelings alike are ever prompting courses of conduct which are pursued to the injury of the whole community. What more absurd than that makers of commodities should be ever seeking to prevent the competition of foreign rivals in the home market, and should shut their eyes to the fact that thereby in substance they impose taxes on the people? Or if commercial depression weighs them down, may they not claim the sympathy of their fellow countrymen to repel the invasion of foreign workers? On the other side, how hard do many find it to resist a generous impulse of humanity, when they see industrious and meritorious traders struggling in vain against the cheaper goods of strangers—still more when the sight stirs them of hard-working men sinking to a lower level of living, and of wives and children pinched with poverty and misery. These are forces of great power, which array themselves against the thinking out with calm intellectual precision the elements of an economical condition. No length of time, no appeal to a settled judgment, avails to avert the attack of such feelings. Backsliding is ever at hand, although the clearest proof has made known what are the inevitable consequences to a whole people of such a blind refusal to recognise the laws imposed on human existence.

This it is which constitutes a radical and permanent difference between political economy and the regular sciences. What they demonstrate is won once for all. The truths revealed by astronomy, chemistry, and physics are accepted and never departed from, unless fresh research compels a remodelling of their form. No sailor ever dreams of acting against the teaching of the heavens, or manufacturer against the properties of the salts and alkalies; but what political economy explains is ever on the slide. At any

moment it may slip down the incline and be buried under the weight of arbitrary, selfish, or charitable feeling. To meet this unceasing danger, a solemn duty is imposed on every teacher of political economy. He is summoned every day to meet the arguments and demands of every class of society, and he is bound to speak to them in their own language. He cannot, like the mathematician and the chemist, use technical words, and feel that men will rely on his assertion because he knows. The men he has to address will call him a theorist and turn their backs upon him. If they are to be argued out of their errors—and we have seen how mischievous they may be—he must employ the language of the market and the workshop, the language of men who think they know all about business.

This brings us to the second cause which has brought about the discredit into which political economy has fallen. This cause is the grave mistake made by economists in attempting to give a scientific form to its teaching. This method of treatment may be said to have begun with Ricardo. Mill followed on his steps, and so have most of his successors. It reached its climax when the facts and rules of political economy were expressed in mathematical formulas, and differentials of the first and second order informed statesmen and merchants, employers and workmen, of the course which they ought to pursue in the production and distribution of wealth. Nor has intellectual ambition been content with lifting up political economy amongst the sciences: it has aspired to give a complete theory of human conduct. Thus political economy has been called away from its true and most beneficial function of explaining the real character of important processes in a particular department of human life, and been plunged into discussion at once unlimited and vague. The distribution of wealth was made the starting-point for speculative inquiries into what were the fitting social relations which should exist amongst men; and the construction of political theory and of the position which the several classes of society should occupy in the correct political organisation threatened to be accounted the special study of political economy. Unlimited scientific theory was made its vocation.

The pursuit of this method led naturally to the proclamation of laws which were described with much pretension as the necessary conclusions of a rigorous scientific investigation, whether deductive or inductive. These broad formulas were set up as the forces which governed man's economical existence, and were applied with imperious claims to authority to the solution of the practical problems of human life. Thus a wage-fund of the most definite amount, incapable of all expansion, was announced as the law of

their labour and the condemner of their conduct to men on strike, who nevertheless, on previous occasions, by striking had extorted the payment of higher wages. The language in which this scientific teaching was couched was as remote from common life as that of the mathematician. Such an everyday fact as rent was described by Cairnes as "a complex phenomenon arising from the play of human interest when brought in contact with the actual physical conditions of the soil, in relation to the physiological character of vegetable productions." Conceive such an answer given to a farmer's inquiry, what is rent? Can it be a matter of wonder if the men of the market and of the factory, the very persons for whom political economy exists, turned their back on the dismal science? Well might Dr. Ingram, in his able address delivered to the Economical Department of the British Association at Dublin, tell Mill and others that "the excessive tendency to abstraction and to unreal simplifications into which they had fallen should be checked," and blame them for "the most serious error of exaggerating immensely the office of deduction in their investigations." Yet Cairnes and Mill and the others were men of distinguished ability, and, in spite of their frequently mistaken procedure, rendered services for which society ought to feel grateful.

Nevertheless, it is positively affirmed that political economy is a science, and as such necessarily requires scientific treatment. This a position vigorously maintained by Dr. Ingram at the very time when he pointed out so graphically some of the errors into which such treatment had landed economists. The question instantly arises, what is science? and a most hard one it is to answer. A high scientific authority recently declared that science is verifiable knowledge; but this is to make science the same thing as knowledge, and thus virtually to extinguish science in any strict and especial sense. It is verifiable knowledge that a seed of corn sown in the ground will grow up into a large plant, and produce food for men; but is the labourer who sows the seed with this knowledge a man of science? Yet he possesses knowledge which can be verified. Again, science has been called systematised knowledge. A farmer, and a sea-captain, a skilful gardener, and a great artist, possess and use a vast amount of systematised knowledge; has any one ever called them men of science? The captain may use means placed at his disposal by science, and thereby discover his position in the ocean; but there are thousands of captains who cross the seas and daily handle scientific instruments and tables, who could give little account of the process by which these instruments tell him where he is. To work a farm and to sail a ship are not science, yet without large systematic knowledge

these practices would end in disaster. Dr. Ingram lays down that political economy admits of scientific investigation, and then proceeds to give an eloquent description of the range and dignity of sociology; but this is to beg the question that political economy is a constituent part of sociology. To show that sociology is a science is not to show by necessary implication that political economy also is a science. No professor of the older sciences has denied that sociology may be a science: but this, in itself alone, is not an admission that political economy is science.

Dr. Ingram then gives his own definition of science. It is "the ascertainment and co-ordination of laws. A law is the statement of a general fact." But again it must be asked, what is a general fact? It is, it may be presumed, a general fact that a labourer who is employed in producing corn for the next harvest must be meanwhile supplied with food, clothing, tools, and materials as the conditions of production: this is a fact known to all mankind, nothing can be more general or more universally known. The words in which it is stated have a scientific look: but is there a farmer or labourer, if asked the question, who would not answer it in language identical in meaning? Is the nature of this knowledge changed by summing up all these items in a single word, capital?

But there must be co-ordination of these laws, we are told, of these general facts, to make them science. Let us take the instance before us, agricultural industry. We have found one general statement: there must be capital. There must also be labourers: how are they obtained? By giving them wages. How are the wages determined? By the state of supply and demand. But does not every man in England know that the wages of labourers depend, generally, on their numbers and the demand there is for their labour? Then again, as Mr. Mill scientifically teaches us, every industry, to be permanent, must repay its cost of production and afford a profit to the capitalist. Who is not aware of that fact, whether he has heard of political economy or not? This necessary value is procured by sale in a market, and market price is determined by the general fact, the so-called economical law of supply and demand, of the quantity of goods offered for sale and the number of buyers. Thus we have three general statements; three laws:—Capital; supply and demand of labourers; supply and demand of goods on sale. They are all co-ordinated, but they are all things which every man of ordinary understanding is perfectly familiar with. What trace is there of science, science built up by intellectual investigation, in all this? Dr. Ingram has not helped us here to the answer of the question, what is science?

It is a truly difficult question, most hard to answer. Perhaps

some light may be shed on this dark problem if we consider for a moment some of the acknowledged sciences. Let us look at geometry. No one disputes that Euclid was a constructor of science. What is the characteristic, the differentia, so to speak, of his method? In his first proposition he establishes by deductive reasoning a truth. That truth is made the instrument for reaching a second truth: thus, step by step, by the help of successive propositions won, a number of truths, previously unknown, are acquired, and then co-ordinated with each other in a body of doctrine. But deductive reasoning, by itself alone, is not science: every argument in every department of life which seeks to prove employs deductive reasoning in common with science.

Inductive science presents the same characteristic features. Its great instrument is analysis. Chemistry, for instance, analyses. It takes to pieces some compound natural substance. It discovers its elements and their qualities, and those elements, for the most part, are substances which were unknown before. It is perceived that in the physical world these elements exist in other compound substances. Their actions on one another are successfully explored and ascertained: and the result is a body of new knowledge, a perception of new forces and of modes of using them, which are fresh acquisitions for the human intelligence. This is science.

But it is difficult to apply the term science to any body of truths which were practically perceived and acted upon before their mutual relations were methodically explained. Nor do generalisation and the perception of unfailing sequence constitute science. A horse and a dog generalise: from observed experience they gather a general fact, a law. They apply it to a new case and act accordingly. A Belzoni hunter took care to let his feet drop on the sound grass over the fence. He generalised from colour. Mr. Lowe laid down prediction as the test of science. The sinking of a stone in water can be predicted: is the boy who threw it to see it sink a scientific person? Did he learn the law of sinking from a scientific instructor? If the knowledge won by observation and intelligence were science, then the gardener who has noticed that some flowers require much water and particular kinds of soil, becomes a man of science; and if this is so he enters into the same category with the physiologist, the astronomer, and the sociologist.

Let us now turn our attention to political economy. What do we find there? Uniform sequences, general facts which can be described as laws because they ever recur in the same form, I am unable to discover: but general tendencies present themselves to the observing eye in abundance, which admit of classification, and of co-ordination, as joint agents in producing common effects. The strongest instance of such a fact or law is that under which

Mr. Lowe sums up political economy, that labour and thrift create wealth, and idleness and waste poverty. A more valuable truth for mankind it would be hard to mention. But it is a truth as ancient as the hills, felt and practised ages before the name of political economy had been sounded amongst men. Mr. Lowe's formula is only a summing up, an expressing in a few terse words practices which the ordinary intelligence of the world had ever understood. It is an act of generalisation no doubt, and science necessarily generalises. But so do most men of all times: for they classify, and classification is generalisation. I repeat, Mr. Lowe's formula is merely a summing up—a kind of label put upon certain practices. A second general fact of the same nature is what is called the law of supply and demand. But these very words, as governing or explaining price, are constantly on the lips of every farmer who goes to a fair, of every trader who deals in a market, and of multitudes of men who have never heard of science. The supply of beasts was excessively large, the demand for onions very small, and their price was determined accordingly, are expressions of the most ordinary occurrence. Does any one ever dream of calling such language scientific? If so, then all knowledge is science, and science justifies its derivation from *scire*, to know. Again, in the agitated region of capital and labour, the labourers appear as ever standing for hire in a market: and on this fact practical rules are laid down for the settlement of the hirings. Is this fact a revelation due to economical writers, a discovery of political economy? Is the advice given to employers and workmen on the basis of this position, scientific advice, real science? It is quite true that this dependence on wages of labourers who possess no property is a position strongly objected to by many thinkers on social grounds, and that new relations are desired and discussed by able and philanthropic men. Political economy has not a word to say against the investigation and pursuit of such an object: but till labourers are placed in a new position, they must inevitably fall under the conditions belonging to every market, and political economy can deal with them only as men existing in a market.

Lastly, Mill's formula of the decreasing returns to the application of capital to agriculture is often spoken of as a grand economical law and generalisation, explaining many particular facts, but it would seem to be rather a truth of detail, long known to every cultivator of land, and amounting to little more than the fact that land cannot be made to yield beyond a limited amount of produce. Every farmer knows, practically and consciously, that additional manuring will not pay in many cases, unless indeed some new potent manure were discovered. Mr. Mill's law is only a

statement of this fact in abstract language: then why should it be spoken of as an economical law?

The conclusion seems to come forth that political economy is not a science, in any strict sense, but a body of systematic knowledge gathered from the study of common processes, which have been practised all down the history of the human race in the production and distribution of wealth. These processes are subjected to examination, and that examination gives insight into their efficiency for reaching the ends desired. But those ends, and the suitability of the processes for obtaining them, were all along known to mankind, not indeed to all, but to the intelligent and the sagacious. The ordinary intelligent mind understood them, and that is the one point here to be carefully noticed. But it will be asked, if political economy only enforces methods already known and practised for attaining objects universally familiar, why should men occupy themselves with the study of it? What advantage does that bring? The answer is easy and decisive. The mission of political economy is to combat and drive off false theory, which is ever invading the processes known to and practised by natural sagacity. Sagacity and love of truth are sufficient by themselves to win everything which systematic political economy treatises teach: but they have to work in a region beset and darkened by false theory in a degree unknown to any other branch of knowledge. They have to encounter intricate entanglements in industry and trade, as well as arbitrary ideas authoritatively enunciated as commanding truths.

Then again the selfishness of men to seek to protect their trade at the expense of every buyer in the country, the emotions of the high-minded but uninstructed philanthropist and other forces, moral and pecuniary, possess a power of inventing doctrines, founded on the complication of trade which is truly astonishing. Even educated men find it exceedingly hard to perceive the fallacies involved in such language, and, under a feeling of imperfect comprehension, bow to the authority of practical men, who must be presumed to know. It requires often great thought to detect and refute these fallacies; one cannot wonder if such a refutation wears a strong look of science. Yet it is not science, however striking may seem the resemblance to it; it is only intelligence, careful observation, and keenness of discernment. These qualities are the contribution which political economy is summoned to give to the right conduct of industrial life, and its value is immense. The theories of the practical man work evil to men and nations of the greatest magnitude: they directly attack the happiness of mankind. The theory of protection, had it not been expelled by the explanations of political economy and the heroic struggles of Cobden and his associates,

would have rendered the existence of a large portion of the people of England impossible.

To this statement of the nature of political economy Dr. Ingram replies that I hold that "it ought to be relegated to what is called 'the common sense of the practical man.'" If that were so, well might he exclaim that "a more fatal suggestion could hardly be 'made.'" But Dr. Ingram misdescribes my meaning: he converts it into its direct contradictory. Like him, in my first lecture at Oxford in 1868, I denounced the mercantile theory as the product of the practical man. I described the practical man as swarming with theories, with ideas built up with the greatest dogmatic confidence on his knowledge of business. His common sense is the very last authority to which the decision of what is right political economy ought to be referred. I spoke of common sense, not as being the judgment of the so-called practical man, but as natural sagacity in its ordinary form, as distinguished from science and its methods. The point insisted on was that the truths enforced by political economy were not due to scientific discovery, but to natural intelligence studying and explaining processes long known in the world. Beyond doubt this natural intelligence, this common sense, may easily fall into error, and demands continued thought and investigation; but so also can science. Common sense and science stand on the same level, each in its own field, as to liability to error.*

But here it is necessary to call attention to an important feature of the method which belongs to true political economy. Its function is the examination of a common process, and its results the illustration of an existing practice, and the removal of a cloud of errors, chiefly theoretical, which may have fastened upon it; but that examination leads to a vast amount of instruction which is new. Political economy observes and analyses complicated combinations, groups details together, lays down practical rules, and traces out the working of principles into the most varied practice. The obligation to meet the intrusion of false theory, and to refute it in a manner that shall convince a whole people, stimulates the economist to trace out what common sense prescribes as the principle which should govern conduct. This it is which calls for elaborate investigation of the whole economical ground, which binds facts together in coherent exposition, and fills economical writings with new matter. As I have previously stated, the entire principle of free trade is contained in the rule of every household—the women to do the needlework, the men to lift the weights; yet how immense is the amount of knowledge required for following out this principle

* Of the inexhaustible power of practical men, under the impulse of individual selfishness, a very remarkable illustration is given in the "Times" of August 27, on the views taken in the United States of free trade and protection.

into the gigantic exchanges of great nations. And the more this process is carried out, the more vivid will be the perception of what is the inmost essence of real economical truth, and the greater the power of wielding it against the theorist. How, in the face of the constant repetition of these views, Dr. Ingram came to imagine that I needed to be asked the question, "what security can there be against endless aberrations and confusion but the systematic observation and analysis of the phenomena resulting in a body of ascertained and reasoned truth?" is more than I can understand. Did he really give this as a definition of science, and suppose that when I denied political economy to be a science, I was denying it to be a body of ascertained and reasoned truth?

But a still higher claim is advanced in behalf of political economy. It is not only a science, but it is also, as Dr. Ingram tells us, an integral part of "the science of society, with which no other branch of investigation can compare in importance or in dignity. It has the most momentous influence of all on human welfare, for it presides over the whole intellectual system. It receives contributions from all other departments of research. It is the most difficult of all the sciences, because it is that in which the phenomena dealt with are most complex and dependent on the greatest variety of conditions, and in which accordingly appearances are most deceitful, and error takes the most plausible forms. Economic phenomena, as being capable of scientific treatment, are comprehended in this scientific sociology." These are great words indeed. There is a sound in them of the whole of man's life—for that life must be spent in society—reduced to scientific regulation. A science which presides over the whole intellectual system—what can it not decide and command? Such a science of society, receiving reports from every other science, every other body of knowledge, will decide whether any man shall have property or whether there shall be rich and poor, whether no man shall be allowed to have food unless he has earned it by personal labour, what form of government a people shall have, whether they shall be ruled by an intellectual despot or by universal suffrage, what shall be their religion, for religion is a mighty force in society, and must therefore be subject to its science. These and a multitude of other matters will be laid down in rules prescribed by universal reason embodied in a mighty thinker or body of thinkers. The day may come when there shall be such a science of society: meanwhile it is only an aspiration, an ambition. Materials indeed for its constitution are beginning to appear among the nations. Socialists, exulting in a name which betokens their lofty mission, are contributing ideas and principles to be inserted in the grand structure; but they and those who differ from them are thinking

not of argument but of war. The enthronement of a science of society, possessing the splendour and the supremacy here attributed to sociology, and reverentially obeyed by all mortals, must be reserved for the millenium ; meanwhile, the vast interests dependent on the practice of right political economy must be cared for by some other process. The theories, and the losses, and the dangers will go on : the teaching of political economy cannot wait till "the most difficult of all the sciences" has built itself up and pronounced its decrees on "the existing social arrangements complained of by "the working classes."

It must be admitted that if sociology ever realises the ideal here given of it, political economy, like every other branch of knowledge, will necessarily be one of its departments. But Dr. Ingram says something more. He lays down that "the study "of the economic phenomena of society ought to be systematically "combined with that of the other aspects of human existence." By these words I understand him to mean that political economy must be discussed and taught avowedly as a part of sociology, and that none of its conclusions must be accepted unless they are pronounced by the sociologist to be in harmony with the right constitution of society. Political economy, embedded in such a soil, would be suffocated and cease to exist for the mass of mankind. Its position is bad enough already, as is universally acknowledged, under the weight of the scientific treatment it receives ; how many traders and working men would read it, if they had to encounter the generalisations of all the sciences, poured out each in its own phraseology ? And then, who is to be authorised to speak in the name of sociology and to issue its decrees ? Shall it be "Comte," or "Herbert Spencer," or any other expounder of what society ought to be ? Who is the man or body whom the French and American communists, the German socialist, or the English unionist will accept as the makers of society ? Meanwhile, political economy is in entire abeyance. Not one of the principles it may put forth as governing the relation between employers and labourers will carry the slightest weight the instant it is authoritatively proclaimed that existing institutions and their principles must first be submitted to the tribunal of sociological ideas. How will a word be listened to about the right wage, if it is shouted by millions that a true sociology forbids wages altogether ? The profound sociologist may preach that a nation which excluded wages would be impossible : but he would preach in the wilderness. The millions will exclaim for ever that his sociology is bad, and his political economy rotten with sociological disease. Will not civilisation itself be threatened ?

But in truth Dr. Ingram has failed to grasp the real position in

which political economy stands towards any form of social science, yet it lay directly under his hand. The whole secret of the problem lies in his own words, that the science of society receives contributions from the other departments of research. The science of society is one body of research: there are others co-existing with it by its side. If the day should ever come when sociology, in the judgment of mankind, had developed itself into the supreme governing science, the true master, judge, and ruler over all the elements of man's individual and national life, then the ultimate decision on human conduct would clearly belong to it. But that day is still far distant: so for sociology we must substitute political philosophy, in its broadest sense; or better yet, the legislator himself. But even were sociology supreme, its position would be that of a science which pronounces judgment after receiving information from independent bodies of thought which are not parts of itself. Their sphere of inquiry is distinct and separate. The sociological judge could not learn and know everything for himself. The science of society would have nothing to do directly with the studies of the chemist or the physiologist. It would receive a report of the knowledge they had established; but it would have taken no part in the investigations they had pursued. Its sole functions would be to combine these reports together, and then to determine what form should be given to human life. Thus geology would inform the authority which would act in the name of sociology—as it does now the supreme decider, the legislator—of the conditions under which coal exists in a particular country; and then the legislator would determine whether with regard to the future welfare of that country the exportation of coal shall be free or restricted. But neither the legislator nor the sociologist is a geologist.

On this basis the position of political economy becomes clear and well defined. It is an investigator in a special but subordinate field of research. It explores a definite subject, a separate and limited department of knowledge. That subject is wealth and its phenomena, its production and its distribution. It is engaged in search after truths which are of extreme importance for the welfare and happiness of society, and of every one of its members. Those truths it reports really to society, to the nation, and ultimately to the mind of the legislator. As a departmental body of knowledge it has its own field of inquiry; but also it falls under the law that the results it obtains must be combined with the truths established by other departments of knowledge. It is master of its own knowledge; but no department can ever possess the authority to declare that its own truths must be carried out into action by the legislator independently of all regard for other truths

established by other branches of knowledge. But the very spirit of science itself, as well as the vital interests of human life, demand that every field of knowledge shall be explored by and for itself alone, and that its truths shall be discovered and established as they are in themselves, without reference to any other investigation into any other subject of inquiry. The combination with other discovered truths begins only after each portion of knowledge has been independently acquired and defined. Thus each truth is ascertained, as it is in itself, by its own proper nature: the work which it is fitted to perform in the world is subsequently determined by comparing the authority belonging to it with the authority of other truths which are concerned in the same work. Such is the position of political economy. It is subordinate so far as its conclusions may be set aside by the legislator, or indeed by any man who is deliberating about employing them; but it is entitled to speak for itself on its own subject. It is dependent and independent at the same moment. Independent so far as it has learnt for itself, and knows the matter of which it speaks: dependent so far as its report may, without being refuted, be not acted upon out of regard for considerations derived from wholly different quarters.

History records many examples of such deliberate putting aside of objects explained by political economy, and recommended by it on the ground of their promoting the acquisition of wealth. Thus war is treated by political economy as a powerful destroyer of wealth. The plea of its enormous cost is often urged against war; but no statesman, and no nation, ever turned aside from war simply as forbidden by political economy. Nor do men hesitate in war to cripple their own commerce: the interests or passions which lead them to engage in war are held to carry greater weight than regard for wealth. Religion and humanity abolished slavery and the slave-trade, though some wealth-producing land might thereby be thrown out of cultivation. The same respect for higher duties prevailed with the British Parliament to impose restrictive regulations on the working of mines and on the employment of women and children in industry. It is confessed that the cost of production of some important commodities has been thereby raised, with the possibility of injurious effects on English labour in competition with that of foreign countries; but no one free from selfishness has challenged the right and duty of the legislature to respect the suggestions of morality and humanity. Again, look at the law in France which enjoins the equal division of land amongst the children of a deceased father. The economist might be summoned to estimate the economical effects of such a law on the cultivation of land. It might be his office to report to the legislator that such a law sentences France to small properties,

to their frequent sale and resale, to insufficiency of capital for successful cultivation, to difficulties of manuring and of draining; but he would have no answer for the French statesman who might reply that it was a thousand times better for the social life of the French people not to offend against moral feeling than to grow rich by its violation. The economist would be silenced, but he would have no ground for complaint, for his authority is limited to a single department of human life.

The same rule applies to free trade. Free trade rests on proof as complete and as sound as any in mathematics. The vigorous theory of protection and the feeble doctrine of reciprocity admit of no defence on the ground of industry, trade, and the material welfare of a people. But the right to bring up its report to the bar of political philosophy, or of sociology, and then to review in combination all the considerations which bear on the policy of practising free trade, is perfectly legitimate and undeniable. No isolated department of knowledge can issue sovereign edicts on the life which a nation ought to lead. Moral, political, social, military, and other reasons may call upon a people to reduce its industry, diminish its trade, and lessen the wealth and numbers of its population in order to obtain benefits of higher quality and value.

But here Dr. Ingram makes a most extraordinary remark. Speaking of the dictum of Professor Cairnes that, "political economy only furnishes certain data towards the formation of sound opinion, but can never determine our judgment on any social question," he exclaims "that this amounts to an entire paralysis of political economy as a social power." Is medical science socially paralysed because it makes reports which are purely sanitary? To call the knowledge which raises up vast industrial towns, covers the seas with ships, develops and feeds immense populations, scatters enjoyments and refinements over the nation, builds up mighty influence over the whole world, and enriches mankind with ever progressive civilisation, a social paralytic is certainly startling.

This subordinate and departmental character of political economy explains the plan assigned to it in the discussions of this Congress. On the one hand social science is a true science, even though it may repudiate the magnificent claim to all-ruling supremacy made in behalf of its ambitious neighbour, sociology. It can discover new truths, new aspects of social matters, and, on the warrant of the truths thus won, prescribe new combinations of social life previously unknown. On the other hand, social considerations of great importance spring up in every part of political economy, and these elements may demand that some of its teaching shall be modified or not be carried out at all. The appeal will lie

to social science, whose authority over the decision of such questions is natural and undeniable.

To resume, in conclusion. The critical point with reference to the loss of authority, caused by the method adopted by eminent economical writers, is not so much whether political economy is in some sense a science as whether the rigorous scientific treatment they pursue is necessary or desirable. Science is a vague word; and the limitation of its definition most difficult. There are reasonings carried on by every one on the commonest subjects which, if minutely scrutinised, must be held to involve science. But economists proceed far beyond such modes of proving. Their aim is to build up a regular scientific structure, a systematic development of co-ordinated knowledge. They proclaim economical laws. In pursuing this method they ignore the nature of their subject and the world which they are called to address. Their function is to explain industrial and trading processes practised by all. The discussions they conduct and the conclusions they reach are understood at once by natural sagacity. It immediately perceives that this is exactly what intelligent men do. The persons addressed are every class in the nation. They are incessantly speaking on economical topics in one way or other: much of what the economists write they have themselves said often. They will not listen to talk about laws on such matters. They are willing to be told of laws of chemistry and hydrostatics. They are conscious that not having studied them they know nothing of such subjects. They are willing to be informed that in these regions certain effects take place in a regular way, and the word "law" only expresses this fact to their minds. But on the operations which occupy their lives they refuse to be silenced by the announcement of laws by persons who claim to be learned. They feel that they are often thinking, to a large extent, the very same things that the economists write—that they argue as well, indeed with more familiar acquaintance with the subject. If they are to be convinced of error it can be done only by the teacher speaking their language: they will listen to nothing else. This is the true world in which Political Economy is called to spend its life; if it chooses to dwell in a temple of science, it will find few listeners. Its influence, when it is thus handled, inevitably decays, and to make it a part of sociology, so that its truths shall be studied and its teaching proclaimed only in sociological writing, will be to extinguish it for its one real audience, the mass of mankind.

MISCELLANEA.

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I.—Agricultural Returns for 1878.

THE following extract, and the summary tables, as before, are taken from the Annual Report made to the Secretary of the Board of Trade, by Mr. R. Giffen, chief of the Statistical and Commercial Department:—

“I have the honour to submit the Agricultural Returns of Great Britain for the year 1878, the data for which were collected, as in previous years, by officers of the inland revenue department in Great Britain, and by officers under the direction of the local authorities in the Isle of Man and the Channel Islands.

“As in 1877, the returns have been again collected on the 4th of June, the change to that date, it will be recollected, having been from the 24th to 25th of the month. The usual summary of the returns was issued to the newspapers on the 20th of August, almost the same day as in 1877, the present complete tables and report being also ready at the end of September, as was the case last year.

“It is satisfactory to notice a further improvement in the disposition of the farmers to supply the desired information to the collectors, the number of acres for which estimates in default of returns were necessary being only 1,768,703 in the present year, as compared with 2,036,931 in 1877. As in former years, those who fail to make returns are very much less numerous in Scotland and in the north of England than in the south and midland counties. This year there are one or two districts where the collectors report that the returns have been largely refused on account of recent prosecutions for evading the dog licences, &c., but such difficulties have not been general. On the whole it is evident that the erroneous idea of the agricultural returns being connected with taxation has much less hold on the minds of the agricultural classes as years pass on, and they find that no injurious effects result to them from the annual stocktaking.

“The local measures of Cheshire and Scotch acres are still a slight cause of error in a few counties, but to a much less extent than formerly.

“In Great Britain returns were this year obtained from 556,809

occupiers, and 5,203 owners of live stock only, the former number being almost identical with 1877, and the latter 132 less than last year's figures. Certain counties show variations which are often caused by returns being made in one or another parish when several farms are held by the same occupier, and occasionally the collectors remark on the sub-division of land, and sometimes on the contrary process of absorption of small holdings, but on the whole very slight differences in the actual number of occupiers and extent of occupations are shown from year to year.

"It may be convenient to repeat here what has formerly been noticed, that the returns in Great Britain are obtained from all occupiers of not less than a quarter of an acre of land, and also from owners of live stock who do not occupy land, but cottagers' pigs are excluded as well as pigs kept in towns. In Ireland, where the enumerators enter the particulars themselves, after personally consulting the occupiers, all holdings, however small, are included, and even garden crops are entered in the schedules.

"The total quantity of land returned in 1878 as under all kinds of crops, bare fallow and grass, amounted, for Great Britain, to 31,855,000 acres. For Ireland the returns obtained by the Registrar-General show a total of 15,345,000 acres, and for the Isle of Man and Channel Islands the totals are respectively 96,223 acres and 30,439 acres. Thus for the whole of the United Kingdom the cultivated area in 1878 was 47,327,000 acres, exclusively of heath and mountain pasture land, and of woods and plantations.

"In Great Britain the area returned as under cultivation has further increased by 142,000 acres since 1877, and by more than a million and a half acres since 1869, two-thirds of this increase, or 1,047,000 acres being in England, 216,000 in Wales, and 252,000 acres in Scotland. As I have had occasion to remark in previous reports, this increased acreage must not altogether be taken as fresh land brought into cultivation, some considerable portion resulting from more correct returns, but in many parts of the country reclamations of small portions of mountain and marsh land are reported by the inland revenue officers.

"In Ireland there is a further decrease of 82,000 acres in the cultivated area, last year's decrease having been nearly 300,000 acres. It was then explained by the Registrar-General that the decrease was owing to a separate heading for 'barren mountain land' which had been often erroneously included under the head of 'grass,' in consequence of having some live stock on it at the time of taking the returns.

"Table (2) of the appendix to this report shows as usual the acreage under arable land and permanent pasture for each of the last ten years, and the steady increase in the latter would appear to indicate that the conversion of arable land into pasture, which is in many cases noticed by the collectors, is still in operation.

"Looking at the details of the different crops, I have to notice with regard to corn crops that the area under wheat in the United Kingdom was 3,382,000 acres, an increase of about 2 per cent. over 1877, and of 8 per cent. over 1876, but the average of the last three years has been considerably below that of the previous seven.

There was also an increase of 2 per cent. in the area sown with barley in Great Britain, but oats show an equal decline, while in Ireland the acreage under this important crop was 4 per cent. less than last year. Beans in Great Britain show a decrease of 12 per cent. and peas of 9 per cent., bringing the total area of corn crops to within 43,000 acres of the figures of last year. The decline, however, both in Great Britain and Ireland has been very considerable since 1869, when there were 12 millions of acres under corn crops in the United Kingdom, as compared with 11 millions at the present time.

"As regards green crops there is little change in the acreage planted with potatoes in Great Britain, but in Ireland there is a further decrease of 3 per cent. from the figures of 1877, the acreage under that crop having steadily diminished from more than 1 million ten years ago to 847,000 at the present time. Turnips and swedes show a further slight decrease in Great Britain. The earlier date at which the returns have been taken for the last two years may have led to the incorrect omission of some land intended for turnips but not sown. The collecting officers state, however, that the sowing of that crop was this year hindered by the wet weather in May, and that the abundance of grass and hay caused fewer turnips to be required. Mangold also has somewhat declined, and the total acreage under green crops in the United Kingdom is less by 130,000, or nearly 3 per cent., than in 1877.

"There is no change in the small number of acres now under flax in Great Britain, but in Ireland there is a further decrease from the reduced figures of last year.

"Hops again show a small increase in Great Britain, nearly 72,000 acres having this year been planted with that crop.

"Rather more land was left under bare fallow than in 1877.

"Clover and rotation grasses for hay show an increase of 6 per cent. in Great Britain, while there is a decrease of 2 per cent. in the same crops not for hay. In permanent pasture in Great Britain there is an increase of 2 per cent. in grass for hay, and of 1 per cent. in grass not for hay. The collectors report in many cases that the abundance of grass in the spring allowed a larger breadth of land to be spared for cutting instead of being required for pasture. In Ireland, the small decrease in permanent pasture is exactly balanced by the increase in rotation grasses.

"Orchards in Great Britain have again slightly increased in extent, and there must also be a considerable quantity of land planted with fruit trees in the small gardens and curtilages that are not entered in these returns. But, nevertheless, the quantity of fruit grown in this country is very far below the demand, the imports from abroad in 1877 having amounted in value to nearly a million and a half sterling.

"Turning now to the various kinds of live stock, I have to notice a small increase in the number of agricultural horses in Great Britain, and a larger increase of nearly 4 per cent. in unbroken horses and brood mares. The importation of horses from abroad continues, the numbers having been 30,524 in 1877, and 21,000 in the first eight months of this year.

"It is satisfactory to find that the recent falling off in the number of horned cattle in Great Britain has not continued during the past year. The number of milch cows is almost the same as in the last return, while other cattle, both over and under two years old, show an increase of 1 per cent. Abundant pastures are reported to have contributed to this result in most counties, but in some instances the collectors notice the competition of American beef and the fear of disease as having caused less cattle to be bred or fattened. The increasing tendency to dispose of stock, so as to realise their value at the earliest possible moment, is also referred to as being the result of several bad or indifferent farming seasons.

"Sheep in Great Britain have somewhat declined in number, owing partly to the circumstance of a favourable season enabling them to be got ready for market earlier in the year than usual. Lambs, however, show an increase of 3 per cent., the lambing season being reported as favourable almost everywhere.

"Pigs, on the other hand, have again declined slightly in Great Britain, and by as much as 13 per cent. in Ireland. It may be remarked that both in Great Britain and Ireland the variations in the number of pigs have been very considerable from year to year; a scarcity of food or the reverse being often sufficient to make a difference of 15 per cent. in the numbers kept. Many of the collectors this year cite the increasing competition of American bacon as diminishing the stock very materially. It appears, in fact, that during the first eight months of the present year, the total imports of bacon from all countries have amounted to 2,404,000 cwts., which exceed by 743,000 cwts. the imports of the same period of 1877, and by 491,000 cwts. the imports of the same period of 1876, which was a year of larger import than had been known previously."

Total Area and Acreage under each kind of Crop, Bare Fallow, and Grass; and Number each Division of Great Britain, with similar Particulars for

	England.		Wales.		Scotland.	
	1878.	1877.	1878.	1877.	1878.	1877.
TOTAL AREA AND ACREAGE UNDER CORN CROPS.						
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Total area	32,597,	32,597,	4,722,	4,723,	19,496,	19,496,
" acreage under crops, bare fallow, and grass ...	24,418,	24,312,	2,747,	2,731,	4,690,	4,669,
CORN CROPS—						
Wheat.....	3,041,	2,987,	102,	100,	75,	81,
Barley or bere	2,063,	2,001,	148,	147,	259,	270,
Oats	1,430,	1,490,	235,	239,	1,034,	1,025,
Rye	50,	49,	1,	2,	9,	10,
Beans	413,	470,	3,	3,	23,	28,
Peas	278,	306,	3,	4,	1,	2,
Total of corn crops	7,275,	7,308,	492,	495,	1,401,	1,413,
GREEN CROPS—						
Potatoes	302,	304,	41,	43,	166,	166,
Turnips and swedes.....	1,467,	1,496,	68,	71,	497,	507,
Mangold.....	334,	848,	7,	8,	2,	2,
Carrots	13,	15,	—	—	1,	1,
Cabbage, kohl-rabi, and rape.....	164,	176,	1,	1,	6,	5,
Vetches and other green crops, except clover or } grass	401,	480,	5,	6,	15,	15,
Total of green crops.....	2,681,	2,759,	122,	129,	687,	696,
CLOVER, SANFOIN, AND GRASSES UNDER ROTATION—						
For hay	1,717,	1,609,	215,	207,	376,	360,
Not for hay	1,068,	1,128,	141,	146,	1,056,	1,045,
Total of clover, &c.	2,785,	2,737,	356,	353,	1,432,	1,405,
PERMANENT PASTURE OR GRASS NOT BROKEN UP IN ROTATION (EXCLUSIVE OF HEATH OR MOUNTAIN LAND)—						
For hay	3,315,	3,239,	406,	399,	120,	130,
Not for hay	7,695,	7,619,	1,342,	1,333,	1,034,	1,018,
Total of permanent pasture, &c. ...	11,010,	10,858,	1,748,	1,732,	1,154,	1,138,
Flax.....	7,	7,	—	—	—	—
Hops	72,	71,	—	—	—	—
Bare fallow or uncropped arable land	588,	576,	27,	23,	17,	17,
NUMBER OF LIVE STOCK, AS RETURNED UPON						
HORSES (INCLUDING PONIES), AS RETURNED BY OCCUPIERS OF LAND—						
Used solely for purpose of agriculture, &c.	767,	761,	72,	71,	140,	139,
Unbroken horses and mares kept solely for breeding	322,	309,	60,	59,	51,	50,
Total of horses	1,089,	1,070,	132,	130,	191,	189,
CATTLE—						
Cows and heifers in milk or in calf	1,568,	1,558,	252,	254,	388,	396,
Other cattle—						
3 years of age and above.....	1,085,	1,079,	112,	190,	279,	272,
Under 3 years of age	1,381,	1,350,	244,	242,	428,	435,
Total of cattle	4,034,	3,960,	608,	616,	1,095,	1,103,
SHEEP—						
1 year old and above	11,410,	11,482,	1,998,	1,974,	4,647,	4,689,
Under 1 year old	7,034,	6,848,	928,	888,	2,389,	2,280,
Total of sheep	18,444,	18,330,	2,926,	2,862,	7,036,	6,969,
Pigs	2,125,	2,115,	218,	231,	140,	153,

* From Returns prepared by the Registrar-General for Ireland, and laid before Parliament.

of Horses, Cattle, Sheep, and Pigs, as returned upon the 4th June, 1878 and 1877, in Ireland,* and with Total for United Kingdom. [000's omitted.]

Great Britain.		Ireland.		United Kingdom, including Isle of Man and Channel Islands.	
1878.	1877.	1878.	1877.	1878.	1877.
GREEN CROPS, BARE FALLOW, GRASS, &c.					
Acres. 56,815, 31,855.	Acres. 56,815, 31,712.	Acres. 20,820, 15,345.	Acres. 20,820, 15,427.	Acres. 77,829, 47,827.	Acres. 77,829, 47,864.
3,218, 2,470, 2,699, 60, 438, 283.	3,168, 2,418, 2,754, 60, 498, 813.	154, 244, 1,413, 11, 8, 1.	148, 227, 1,478, 10, 9, 1.	3,382, 2,723, 4,124, 71, 446, 284.	3,331, 2,653, 4,239, 71, 507, 313.
9,168,	9,210,	1,831,	1,868,	11,030,	11,108,
508, 2,032, 343, 15, 172, 421.	518, 2,073, 358, 16, 183, 442.	847, 330, † 45, † 4, 47, 45.	873, 336, † 49, † 3, 47, 48.	1,965, 2,372, 389, 19, 219, 468.	1,393, 2,419, 408, 20, 230, 492.
3,491,	3,585,	1,318,	1,355,	4,832,	4,962,
2,308, 2,265,	2,176, 2,318,	1,943,	1,925,	6,558,	6,460,
4,573,	4,494,				
Total of green crops					
Clover, sainfoin, and grasses under rotation— For hay Not for hay					
Total of clover, &c.					
Permanent pasture or grass not broken up in rotation (exclusive of heath or mountain land)— For hay Not for hay					
Total of permanent pasture, &c.					
7, 72, 632.	7, 616,	112, —, 17,	123, —, 17,	119, 72, 650,	181, 71, 633,
Flax Hops Bare fallow or uncropped arable land					
THE 4TH JUNE, 1878 AND 1877.					
979, 433.	971, 418,	505,	496,	1,927,	1,894,
1,412,	1,389,				
Total of horses					
2,208, 1,477, 2,053.	2,207, 1,464, 2,027.	1,484, 876, 1,624.	1,531, 879, 1,596.	3,709, 2,357, 3,695.	3,745, 2,348, 3,639.
5,738,	5,698,	3,984,	3,996,	9,761,	9,732,
Total of cattle					
18,055, 10,351.	18,145, 10,016,	2,590, 1,504,	2,534, 1,456,	20,684, 11,887,	20,719, 11,501,
28,406,	28,161,	4,094,	3,989,	34,571,	33,220,
2,483,	2,499,	1,269,	1,468,	3,768,	3,984,
Total of sheep					
Pigs					

† Including beet root.

‡ Including parsnips.

Percentage of Total Cultivated Acreage under Various Kinds of Crops, and of the Number of each Kind of Live Stock to every 100 Acres

	England.		Wales.		Scotland.	
	1878.	1877.	1878.	1877.	1878.	1877.
PERCENTAGE OF TOTAL CULTIVATED ACREAGE						
Corn crops (including beans and peas)	29·8	30·0	17·9	18·1	29·9	30·2
Green crops	11·0	11·3	4·5	4·8	14·6	14·9
Bare fallow	2·4	2·4	1·0	0·8	0·4	0·4
Grass—						
Clover, &c., under rotation	11·4	11·3	13·0	12·9	30·5	30·1
Permanent pasture	45·1	44·7	63·6	63·4	24·6	24·4
Other crops	0·3	0·8	0·0	0·0	0·0	0·0
Total	100·0	100·0	100·0	100·0	100·0	100·0
PERCENTAGE OF TOTAL ACREAGE OF CORN CROPS						
Wheat	41·8	40·9	20·7	20·8	5·4	5·7
Barley or bere	28·3	27·4	30·1	29·7	18·5	19·1
Oats	19·7	20·4	47·8	48·4	73·8	72·5
Rye	0·7	0·7	0·3	0·3	0·6	0·7
Beans	5·7	6·4	0·5	0·6	1·6	1·8
Peas	3·8	4·2	0·6	0·7	0·1	0·1
Total	100·0	100·0	100·0	100·0	100·0	100·0
PERCENTAGE OF TOTAL ACREAGE OF GREEN CROPS						
Potatoes	11·3	11·0	33·3	33·1	24·1	23·8
Turnips and swedes	54·7	54·2	55·0	54·7	72·4	72·8
Mangold	12·5	12·7	5·9	6·0	0·3	0·3
Carrots	0·5	0·5	0·3	0·3	0·2	0·2
Cabbages, kohl-rabi, and rape	6·1	6·4	1·1	1·0	0·9	0·7
Vetches, lucerne, and any other green crop, except clover or grass	14·9	15·2	4·4	4·9	2·1	2·2
Total	100·0	100·0	100·0	100·0	100·0	100·0
NUMBER OF EACH KIND OF LIVE STOCK TO EVERY						
Horses	4·5	4·4	4·8	4·7	4·1	4·0
Cattle	16·5	16·4	22·1	22·6	23·4	23·6
Sheep	75·5	75·4	106·5	104·8	150·0	149·3
Pigs	8·7	8·7	7·9	8·4	3·0	3·3

Acres of Corn and Green Crops under the several Descriptions of such Crops, and under Cultivation, in each of the Years 1878 and 1877.

Great Britain.		Ireland.		United Kingdom, including Isle of Man and Channel Islands.		
1878.	1877.	1878.	1877.	1878.	1877.	
UNDER VARIOUS KINDS OF CROPS IN EACH YEAR.						
28·8	29·0	11·9	12·1	23·3	23·5	{ Corn crops (including beans and peas) Green crops Bare fallow Grass— Clover, &c., under rotation Permanent pasture Other crops
10·9	11·3	8·6	8·8	10·2	10·5	
2·0	1·9	0·1	0·1	1·4	1·3	
14·4	14·2	12·7	12·5	13·9	13·7	
43·7	43·3	66·0	65·7	50·8	50·6	
0·2	0·3	0·7	0·8	0·4	0·4	
100·0	100·0	100·0	100·0	100·0	100·0	
UNDER EACH KIND OF CORN CROP IN EACH YEAR.						
35·1	34·4	8·4	7·7	30·7	29·9	Wheat Barley or bere Oats Rye Beans Peas
26·9	26·2	13·4	12·2	24·7	23·9	
29·4	29·9	77·1	79·0	37·4	38·2	
0·7	0·6	0·6	0·5	0·6	0·6	
4·8	5·5	0·4	0·5	4·0	4·6	
3·1	3·4	0·1	0·1	2·6	2·8	
100·0	100·0	100·0	100·0	100·0	100·0	
UNDER EACH KIND OF GREEN CROP IN EACH YEAR.						
14·6	14·3	64·3	64·3	28·2	28·1	Potatoes Turnips and swedes Mangold Carrots Cabbages, kohl-rabi, and rape { Vetches, lucerne, and any other green crop, except clover or grass
58·2	57·8	25·0	24·8	49·1	48·8	
9·8	10·0	3·4	3·6	8·1	8·2	
0·4	0·4	0·3	0·3	0·4	0·4	
4·9	5·1	3·6	3·5	4·5	4·6	
12·1	12·3	3·4	3·5	9·7	9·9	
100·0	100·0	100·0	100·0	100·0	100·0	
100 ACRES UNDER CROPS, FALLOW AND GRASS.						
4·4	4·4	3·3	3·2	4·1	4·0	Horses Cattle Sheep Pigs
18·0	18·0	26·0	25·9	20·6	20·6	
89·2	88·8	26·7	25·9	68·8	68·2	
7·8	7·9	8·3	9·5	8·0	8·4	

II.—*The Commissariat of Paris.*[Translated from *L'Économiste Français*, 12th October, 1878.]

THE *Économiste Français* contains a series of statistics collected by M. Toussaint Loua from the *Bulletin Municipal*, showing the relative quantities, prices and consumption of certain articles brought to the markets in Paris during the years 1872 and 1877. This interval of five years enables a comparison to be made between the cost of this class of provisions, which absorbs a large proportion of the expenditure upon housekeeping. Before arriving at the general results, the details are given, and the first place is assigned to—

Poultry and Game.—In 1872 there were brought into Paris 20,292,583 kilogrammes of game, of which 2,131,515 were consigned to dealers, and 18,161,168 were sold at the central halles. In 1877, the quantity introduced was nearly the same (20,586,827 kilogrammes), but the quantity disposed of at the halles was somewhat less (17,655,910 kilogrammes). The latter weight includes 13,932,906 kilogrammes sold by auction, and 3,723,004 sold in the ordinary manner. The comparative results are as follows:—

	Number.		Average Price.	
	1872.	1877.	1872.	1877.
			frs.	frs.
Fowls.....	3,324,775	4,132,851	2·76	4·38
Ducks	623,467	749,133	2·66	3·54
Geese.....	490,805	528,139	5·72	6·01
Turkeys.....	880,244	317,427	7·64	8·42
Pigeons.....	1,670,604	1,655,656	0·94	0·95
Partridges.....	449,556	442,450	2·20	2·68
Pheasants.....	35,654	57,330	6·37	7·10
Larks.....	1,280,448	1,037,064	0·17	0·20
Woodcocks	15,648	20,322	3·92	4·11
Snipes	9,445	12,175	1·22	1·34
Quails	61,638	86,081	0·68	0·89
Thrushes and blackbirds....	89,191	76,162	0·36	0·30
Rails	1,677	2,042	0·74	1·23
Plovers	11,438	10,455	1·11	1·08
Teal	20,462	9,663	1·47	1·25
Lapwings	50,635	35,704	0·69	0·79
Rabbits.....	1,369,878	1,605,979	1·87	2·98
Hares	238,492	181,502	4·86	5·89
Lambs	13,004	11,230	20·01	19·37
Deer	7,980	8,228	37·95	62·84
Goats.....	86,432	89,167	2·69	3·88
Sucking pigs.....	9	1,498	28·88	21·76
Non-specified	188,639	142,619	1·50	2·35

When we examine this list of prices, we find that with the exception of lambs, sucking pigs, and a few descriptions of game, every article has advanced in price. For fowls and for deer the increase has been as much as 63 per cent., and upon the whole there is an increase of about 33 per cent., *i.e.*, one-third. Moreover, if we take

note of the fact that the population of Paris in 1872 was only 1,852,000 persons, and that it had risen in 1877 to 1,988,000, it will be seen that the average consumption for each person has fallen from 10·951 kilogrammes to 10·355 kilogrammes, which makes a decrease of 596 grammes per head.

Butchers' Meat and Pork.—The quantity of meat consumed during the two years has been as follows :—

	1872.	1877.
Butchers' meat..... kilo.	115,497,403	133,061,164
Pork „	21,768,199	18,903,036
Total	137,265,602	151,964,200

This is equivalent to 74·1 kilogrammes for each person in 1872, and to 76·4 kilogrammes in 1877. The values not having been indicated in 1877, we are compelled for the sake of comparison in the prices to have recourse to the wholesale sales effected by auction at the central halles :—

Price per Kilogramme for	1872.	1877.
	frs.	frs.
Beef.....	1·43	1·53
Veal.....	1·56	1·62
Mutton	1·58	1·66
Pork	1·43	1·50
	1·51	1·58

It results that by auction the price of meat has risen 7 centimes the kilogramme, or 4·6 per cent. But it is apparent that the increase has been very much greater at the ordinary sales.

Salt and Freshwater Fish.—In 1872, there were brought to Paris 25,056,685 kilogrammes of fish of every description; the quantity in 1877 was 25,899,257 kilogrammes. Thus, the consumption per head has fallen from 13·5 kilogrammes to 13 kilogrammes. The sale of this article has been almost entirely confined to the central halles, and the detail of the two years was as follows :—

	1872.		1877.	
	Quantities.	Average Price.	Quantities.	Average Price.
Sea fish	17,169,443	0·78	19,406,695	0·95
Shell „	5,232,177	0·10	4,200,844	0·11
Salt „	337,537	0·44	22,489	0·37
Freshwater fish	2,248,083	1·05	2,140,580	1·42
	21,987,240	0·80	25,820,808	0·85

Oysters.—In 1872, the arrivals of fresh oysters had been 2,583,739 kilogrammes, of which 274,197 kilogrammes were delivered at private houses, and the remainder was sold at the halles. In 1877, the arrivals had risen to 2,792,818 kilogrammes, and of this quantity only 780,217 kilogrammes were sold at the halles. The quantity of oysters has not varied from one year to another, and each Parisien continues to consume 1·4 kilogramme annually. At the halles, the oysters are sold by the hundred, and to obtain the total weight it is necessary to take as a basis the average weight of each different kind of oyster brought to the market. It results as follows :—

	Sales.		Average Price per 100.	
	1872.	1877.	1872.	1877.
			frs.	frs.
Courseulles	110,288	32,817	11·71	11·92
Ostend	4,715	62	8·34	11·95
Marennnes	—	9,611	—	6·38
Armoricaïnes	1,439	2,979	7·70	6·32
Other kinds, Cancale, Arca- chon, &c. }	15,044	23,760	8·69	7·24
	131,486	69,229	11·21	9·27

At the halles the price of oysters has sensibly diminished, although such has not been the case at the restaurants.

Butter.—The quantity of butter disposed of direct to the consumer was in 1872, 4,185,438 kilogrammes, and the sales at the halles were 10,228,993, making a total of 14,414,431 kilogrammes. In 1877 the results were very similar, 14,902,695 kilogrammes in all, distributed thus: 4,238,479 sold direct to individuals, and 10,664,216 at the halles. The population, however, being increased, the quantity consumed by each person, which in 1872 was 7·8 kilogrammes, did not exceed 7·5 in 1877. The following are the details of the sales during the two years :—

	Quantity in Kilogrammes.		Average Price per Kilogramme.	
	1872.	1877.	1872.	1877.
			frs.	frs.
Ordinary sales	29,651	21,814	2·0	1·59
Butters in lump of Isigny	2,913,173	2,856,080	3·49	3·89
Gournay.....	2,536,623	3,179,894	3·02	3·28
Butters by the pound	2,330,268	2,446,320	2·69	2·88
" inferior class	2,401,114	2,133,263	2·41	2·38
" salted	18,164	16,844	1·21	1·78
	10,228,993	10,664,215	2·90	3·16

With regard to the price, there was an increase of 26 centimes per kilogramme, or 9 per cent.

Eggs.—The quantities introduced were respectively 14,552,828 kilogrammes in 1872, and 14,902,695 in 1877, which, taken in connection with the population, gives 7·85 kilogrammes in 1872 and 7 kilogrammes only in 1877. At the halles, where the bulk of the sales take place, eggs are reckoned by the number. The weight given above is based upon the calculation that 20 eggs weigh 1 kilogramme. The auction sales present us with the following results:—

	Quantity in Thousands.		Price per Thousand.	
	1872.	1877.	1872.	1877.
			frs.	frs.
Eggs, selected	69,299	42,278	90·0	97·25
„ common	162,894	189,443	73·80	83·25
	232,193	231,721	78·63	85·25

The price per 1,000 has increased upon the average 6 frs. 62 c., i.e., 8·4 per cent.

Cheeses.—The hard cheeses alone pay the *octroi* duty; their quantity in 1872 was 3,746,942 kilogrammes, and in 1877 3,840,865. There are other descriptions sold by the number at the halles; and taking for a basis the average weight of each of these different sorts, it is reckoned that in 1872 the weight in all was 5,048,129 kilogrammes, and 5,054,462 in 1877. Then adding both categories together, we have a total of 8,795,471 kilogrammes in 1872 and 8,895,627 in 1877, which gives the consumption for each inhabitant respectively from 4·7 kilogrammes to 4·5 kilogrammes.

The prices for the two years of comparison at the central market are given below:—

	1872.	1877.
Brie, ordinary sales..... each ten	53·49	55·0
„ sales by auction „	18·67	19·52
Montlhéry, ordinary sales „	15·00	16·0
Sales by auction—		
Neufchâtel per 100	9·18	8·33
Livarot „	53·19	53·01
Mont-Dore „	20·37	20·08
Other sorts „	27·22	32·55
Cheeses, new per kilo.	0·67	1·21
„ hard „	1·24	1·55

Vegetables and Fruits.—The raisins being alone subject to duty, it is not possible to state the entire arrivals of fruits and vegetables. The raisins which in 1872 were 7,597,535 kilogrammes, had risen in

1877, to 9,158,181 (4·1 kilogrammes, and 4·6 kilogrammes each person). The sales by auction of different fruits and vegetables amounted in 1872 to 9,547,674 kilogrammes, and 11,200,496 in 1877. The following were the variations in price :—

	1872.	1877.
Fruits, selected and early per kilo.	1·39	1·53
„ ordinary	0·12	0·41
Vegetables, selected and early ..	0·94	1·53
„ ordinary	0·34	0·41
Potatoes	0·07	0·09
Watercress .....pr.baskt.	12·19	13·05

To recapitulate :—

For poultry and game, the prices have risen during five years 33 per cent., and the consumption has diminished per head from 10·951 kilogrammes, to 10·355 kilogrammes. Butchers' meat and pork, the wholesale price has increased 4 to 6 per cent., and the average consumption has increased likewise 2 kilogrammes per head. Fish, fresh and saltwater, the prices have risen 5 centimes the kilogramme, and the consumption per head has fallen from 13·5 kilogrammes to 13 kilogrammes. The price of fresh oysters has sensibly diminished, nevertheless the consumption per head has not altered. The average price of the kilogramme of butter, by auction sales, which in 1872 was 2·90 frs. the kilogramme, has become 3·16 frs.: an increase of 9 per cent. The consumption has fallen from 7·8 kilogrammes to 7·5 kilogrammes per head. The price of eggs has risen from 6·62 frs. per 1,000, or 8 per cent., and the consumption has fallen from 7·8 kilogrammes to 7 kilogrammes. The prices have increased in like manner of cheese, fruit and vegetables, but the whole of the arrivals not being ascertainable, it is not possible to know the variations in the consumption. Upon the whole, it may be remarked that with the exception of butchers' meat, of which the consumption has increased, and of oysters, of which the consumption has not varied, there has been a decrease in the consumption per head of the major portion of other commodities.

III.—Notes on Economical and Statistical Works.

THE new work on *Coal, its History and Uses*, by Professors Green, Miall, Thorpe, Rücker, and Marshall, of the Yorkshire College of Science, is in part at least a statistical work of some importance. The professors divide among themselves all the scientific phases of the subject. Professor Green treats of the geology of coal, Professor Miall of the coal-plants and animals of the carboniferous era, Professor Thorpe, who is also the general editor of the book, takes the chemical side; Professor Rücker has

some important chapters on coal as a source of warmth and power; lastly, Professor Marshall discourses on the coal question, that is, on the statistical evidence concerning the probable duration of our coal beds.

The vast importance of coal as a factor in our civilisation is shown by the fact that the coal raised in Great Britain alone in 1876, contained an amount of energy equal to the labour of 3,000,000,000 (three thousand millions) adult slaves labouring daily throughout the year. Some indication of our present absolute dependence in coal was furnished, in the opinion of Professor Marshall, by the "coal famine," as it was called, of 1872-73. A great deal of confusion and trouble was occasioned by a deficit which, in the professor's opinion, was probably not more than 1 per cent. of the world's supplies of coal, or 2 per cent. of our own. The subsequent prolonged depression and even collapse, for which the high prices resulting from that deficit are largely responsible, are only a premonition of what would ensue were such a deficit to become chronic, and a real coal famine to come upon us.

Professor Marshall proceeds to inquire whether there is really any probability of such a famine occurring in Great Britain within a period to which our interest can extend, say within a century or two. He reviews the facts elicited by the Coal Commission of 1866, and discusses the views of Mr. Robert Hunt, Sir W. Armstrong, and Professors Hull and Jevons. There is a calm, judicial tone about Mr. Marshall's arguments, which much impresses the reader with his command of the subject, and his unbiassed desire to reach the truth. It is with some concern, therefore, that we find him eventually taking sides with the "alarmists." He thinks that there is no evidence of our having reached any maximum or limit of consumption, and looks forward unhesitatingly to a continuous progress. Incidentally he gives and discusses a table of the quantities of coal consumed in making pig iron, as printed by Mr. Mundella, M.P., in his recent paper, read to our Society (19th February, 1878, vol. xli, p. 112). While admitting the progress of economy in the use of coal, Professor Marshall points out that the last few years do not afford a good criterion of the results, owing to the exceptional collapse of the iron industry. By appeal to various facts, Mr. Marshall shows that there is no reason to think that the demand of the world as a whole can have reached or is likely to reach a maximum within periods under consideration. To make such a supposition is, he thinks, "to fly in the face of all experience." The general outcome of his tables and arguments is, that there must be progress in the world as a whole, and that we must endeavour as long as possible to keep pace with this progress. An attentive consideration of the table on p. 341, showing the approximate outputs of the chief coal-producing countries of the world in 1875, as compared with 1855, tends to produce some misgivings. We learn that whereas the United Kingdom has effected a truly enormous increase in the output, namely, from 66 millions of tons to 132 millions, an increase of just 100 per cent., most other progressive countries have advanced 200, 400, or even 800 per cent. in the same time. Thus the output

in France has increased from $7\frac{1}{2}$ to 17 millions; in Austria from $2\frac{1}{4}$ to 12 millions; in Australia from $\frac{1}{4}$ to $1\frac{1}{2}$ millions. In Germany the increase is even more surprising, namely, from 8 to 50 millions, or by 462 per cent. But greatest of all is the advance in the United States, where the consumption of 1875 is actually *ten times* as great as in 1855, namely, 50 millions instead of 5 millions—an increase of 900 per cent.! Those who will ponder over these facts will see, with Professor Marshall, that, vast as is at present our production of coal, and still nearly half of what is produced in the whole world (our production being 132 millions compared with a total of 279 millions) we are every year commanding a smaller fraction of the great source of power.

But whatever conclusion the reader of the final chapters will draw, he will probably agree that the youthful College of Science at Leeds has scored some good marks in its favour, by producing an admirable scientific compendium of facts relating to so important a subject. A thoroughly scientific treatment of the main points has been accomplished without sacrificing the semi-popular character of the style.

Among several attempts which have recently been made to popularise the truths of political economy, we may give an honourable place to Dr. Simon Newcomb's "A B C of Finance, or the Money and Labor Questions familiarly explained to common people, in short and easy lessons." (Harper and Brothers, New York, 1878.) It forms one miniature volume of Harper's Half-hour Series, and consists partially of lessons printed in *Harper's Weekly*. The writer is the very eminent astronomer who directs the United States Naval Observatory at Washington, and who may fairly be considered one of the most profound physicists and philosophers of his day. He exposes in a very brief, but effective way, the fallacies of irredeemable currency, and points out the true way to build up again the prosperity of his country. Such lessons are needed, indeed, by those who had the folly to pass the Bland Act. But though folly may temporarily conquer, it is impossible that a country where freedom of discussion is absolutely secured, and where excellent elementary lessons such as those of Dr. Newcomb are circulated by the hundred thousand, can permanently remain in the dark.

We have not yet mentioned the "Chapters on Practical Political Economy" of Professor Bonamy Price, which have appeared in the course of the year now closed. They contain the substance of lectures delivered by the author in virtue of his well-known position as Professor of Political Economy in the University of Oxford. They treat of many of the most fundamental and debatable questions of the science, such as Value, Exchange, Capital, Profit, Wages, Trade Unions, Free Trade, the Doctrine of Rent, Money—Metallic and Paper, and finally, Banking. On some of these points the professor diverges distinctly from the current doctrines. Thus in discussing the important subject of Rent, he treats "the much vaunted theory, which has been so groundlessly made the guide of political economy," that is, of course, the so-called Ricardian theory, as a very one-sided and incomplete account of the matter.

Rent, he thinks, is the result of many forces, and not of one. "The boasted doctrine of rent was merely the brilliant statement of the action of one force only. . . . But unfortunately it did not quit the region of the imagination." But it may be doubted whether the professor in his desire to be thought practical has not sometimes omitted to be scientific. He overlooks the fact that in science we must be abstract, that is, we must treat one cause separated in its action and result from other causes. Science is analysis; and there is nothing in this inconsistent with subsequent synthesis. But Professor Price strives to be analytic and synthetic at the same time.

One of the most interesting portions of the volume consists of a long correspondence between the author and Mr. Henry Hicks Gibbs, one of the ex-governors of the Bank of England. Professor Price assails, in lively language, what he calls "the gold theory," and charges the bank directors with not really believing and acting up to theory which they profess to uphold. It is difficult to make out exactly what the "gold theory" does or does not mean; and the professor's letters are a series of lively diatribes against the Bank Acts and the present theory of management of the Bank of England generally. Some readers may think that the replies of Mr. Gibbs amount to a crushing defeat of his correspondent; at any rate, they give a very interesting insight into the action of a central bank of reserve, and the views which have guided one of its most intelligent governors.

Among practical political economists we may certainly assign a high place to Leclaire, the founder of industrial partnerships in France. The principle of such association has made little or no apparent progress in England of late; there may even have been retrogression. It is well, therefore, to have our attention called by M. Charles Robert to the great and growing success of Leclaire's creations. The business of the house, which was 1,500,000 frs. a-year at the time of Leclaire's death, in 1872, now attains the sum of 2,000,000 frs. The total profits appropriated since 1842, either to the *Société de Secours Mutuels* of the business, or divided among individual workmen, attained on the 1st September, 1878, the enormous amount of 1,932,517 frs.—nearly two millions! This is the net gain to the working classes by the existence of this one industrial partnership. Yet in England the workmen have deliberately rejected such opportunities of gain and advancement when offered to them by Messrs. Fox, Head, and Co., Messrs. Briggs, and others. We are forced to accept the opinion of Mr. Jeremiah Head, that our working classes are not sufficiently advanced in intelligence to understand the benefits of the system. But M. Charles Roberts' pamphlet, entitled *Biographie d'un Homme Utile*, containing an interesting sketch of the life and labours of this true philanthropist, is full of interest and instruction.

The volume of Transactions of the Manchester Statistical Society for the Session 1877-78, lately issued, contains the following papers:—Inaugural Address, by Mr. Thomas Dickins, J.P., President; Savings Banks, by Mr. William Langton; on the Recent Variation between the Bank and Market Rates of Discount,

by Mr. Thomas B. Moxon; on English Prisons and the Prisons Bill, by Captain R. A. Leggett; the Silver Question, by Mr. Elijah Helm; on Contagious Diseases of Cattle and their Influence on Meat Prices, by Mr. John Hyde; and finally, on Municipal Finance, by Mr. John Goodier. The Society have now adopted the practice of giving after each paper a brief report of the discussion thereupon.

The leading American Reviews now often contain careful papers of interest to English statista. In the *Princeton Review* for September last we find an article by Mr. Arthur Arnold on The Cost of a Landed Gentry. To the November number of the same review Professor Leone Levi contributes a carefully written paper on Copyrights and Patents. In the recent numbers of the *International Review* we note several articles, such as one by the Hon. David A. Wells on the Elements of National Wealth, by Mr. Edward Atkinson on Industrial Reconstruction, and a very able contribution by Mr. Horace White, entitled, After Specie Resumption—What?

The *Statistique Internationale des Banques d'Emission*, prepared by the Italian Statistical Office, is a very interesting volume. It contains full details relative to the constitution, working, and magnitude of the issuing banks of Austria-Hungary, Belgium, the Netherlands, and Sweden and Norway. The largest and most important of these is the Austrian Bank, whose business is very extensive. This is no doubt due to the fact that the national bank is almost the only one in Austria. The figures which appear in its returns cannot challenge comparison with the gigantic amounts which the Bank of France has to deal with, but they are nevertheless large. A note circulation of from 25 to 30 millions sterling as a yearly average is not to be despised. In 1876 the discounts amounted to 64,053,000*l.*, while in 1873, the panic year, they rose to the enormous sum of 87,700,000*l.* An interesting table is given, showing the position of the bank week by week in that unfortunate year. The Government were obliged to authorise the bank officials to disregard Article 14 of the bank statutes, in accordance with which all notes in excess of 200 million florins must be covered by coin or bullion to a corresponding amount. The information concerning the other banks treated of is also of great interest.

Another important statistical volume to which we desire to call attention is Professor Neumann Spallart's *Uebersichten über Produkten Verkehn und Handel in der Weltwirthschaft*. The volume is a sort of international statistical abstract, giving information of a general kind, and arranged not according to countries, but according to what may be called for convenience demographical departments. Dr. Neumann divides his subject into five parts, dealing with, first, Means of Subsistence and Luxuries, Raw Materials of Industry, The Circulating Media, and Means of Transport. The fifth part is a review of the trade of the world for 1876. Under each of the first four heads he shows the condition of each nation in regard to it. In the case of the section on grain, he divides the nations into two classes, namely, those who usually export and those who usually import grain. In the other

sections of the work, the nations are either taken separately or grouped, according to convenience. The wide extent of the field covered by this work necessarily excludes from it all details of the facts shown in it. It is an outline of the economic phenomena of the world, in which only the broad features of the object delineated can be discerned. As a suggestion for the form in which a demographical investigation of the economics of any one country should be carried on it may be of considerable use, quite apart from its value as a book of reference for general statistical purposes. Of course the form adopted in Dr. Neumann's book would have to be modified in the case of each country according to special circumstances, but we may safely say that the main economic questions regarding all countries might be answered under the four heads above given.

We must also mention Mr. W. B. Dana's able volume, *Cotton, from Seed to Loom*. This work is an attempt to reduce and generalise on a sound scientific plan the various isolated calculations made each year by a numerous body of shrewd men as to the probable amount of the season's crop of cotton. In his introduction, Mr. Dana says, "Our first and main effort has been directed to elucidating the question of American supply;" and he goes on to remark that the statements made in the early part of each season on the American cotton crop are "a mass of contradictions." Not that there is, as a rule, any intention to mislead, but those who give the information are singularly ignorant of the real conditions of the growth of the cotton plant, and that enough allowance is not made by those who endeavour to use the information, for the different meteorological circumstances of different districts. Mr. Dana quotes cases within his own knowledge of the miscalculations made by even experienced planters. Mr. Dana has done his best to discover what really does kill the cotton plant, or hinder its proper development. He supplements his investigation of this important primary circumstance by a careful inquiry into the actual relation of the rainfall and other meteorological data to the amount of the crop during a series of years. He traces the progress of the crop through the four stages of its growth, and carefully notes all the circumstances which appeared to bear on its ultimate amount. The book contains elaborate sets of tables relating to all the above points. Having concluded his investigation of the process of raising the crop, Mr. Dana proceeds to examine the working and organisation of the cotton trade. His chapter on "Spot and Future Markets and Prices" is very interesting. The work concludes with some remarks on cotton consumption.

During the quarter ended in September last, a book was presented to the library which could not be more than mentioned in the last number of this *Journal*. We refer to Colonel J. T. Smith's *Silver and the Indian Exchanges*. Colonel Smith's seven essays form an able exposition of the views held by him and other able men in favour of a gold standard for India. He is careful to point out that the important thing to aim at is the attainment of a gold standard and not necessarily a gold currency. Colonel Smith pro-

poses to stop the coinage of silver rupees for private account, and allow the present circulation of those coins to continue as heretofore, but on the basis of a gold standard, according to which ten rupees would be worth a sovereign. Ten rupee pieces would be struck as fast as gold came in, but there would be no necessity to buy up that metal, for after a few years it would be found worth while to import gold for coinage, since the rupee would soon be appreciably higher in value if the metallic circulation of India were prevented from increasing at its natural rate, which, according to Colonel Smith is about 5,000,000 on the average. At first, of course, the rupee would be considerably over-valued, and there would be a profit to be made by coiners of rupees of standard weight and fineness. But, as Colonel Smith remarks, this is a danger to which France is liable, but from which she has not, as far as we know, suffered. The objection as to illegal coining does not sufficiently take into account the difficulty and hazard of the business, and even supposing that some illicit increase of the circulation took place, it could have but little effect on the result of Colonel Smith's measure, for to seriously "impede the progress of the desired change 50 millions of rupee pieces must be put into circulation annually." Any gold pieces coined under this plan would at first command an *agio*, which *agio* would *pro tanto* assist the introduction of gold. Colonel Smith's scheme then is based on the same principle that has been applied so successfully in the United States to raise greenbacks to par with gold, viz., limitation of issue. We see no objection whatever to the proposal, except the general one against all changes in the good monetary arrangements which India admittedly possesses now. When a country has an efficient currency system, the wisdom of changing it is always doubtful. In the case of India we admit that there *may* be an exception to the rule, especially as there would be no violent wrench involved in the carrying out of Colonel Smith's plan.

The last published *Zeitschrift* of the Bavarian Statistical Bureau contains, in addition to much interesting tabular matter, a fine diagram of the movement of population in Bavaria for the fifty years 1825-75. The curve of the price of rye is also given.

Part IX of the *Statistisches Jahrbuch* of Austria for 1876 contains statistics of the savings banks of that country. Full returns are given for each bank, the places where they are situated being arranged under the heading of their respective provinces. The *Jahrbuch*, we may remark, does not come out in any regular order. Of the eleven parts into which it is divided, the first (area, population, &c.), and the eleventh (military and naval statistics) are the first to appear, and the other sections are brought out as they can be completed.

IV.—Notes on Additions to the Library.

AMONG the donations to the Society's library during the last quarter we notice the following :—

A pamphlet by Dr. Ottoman Victor Leo on the labour question in reference to agriculture (*Zur Arbeiterfrage in der Landwirthschaft*). Dr. Leo explains five different ways in which the regulation of the wages of agricultural labourers on a satisfactory basis have been attempted in certain parts of Germany. Dr. Leo is the Professor of Political Economy in the Royal Agricultural Academy at Prostrau in Silesia, and has paid much attention to the difficulties in the way of a sound solution of the question. By means of calculations made by Dr. Engel and other German statisticians, he shows that wages are not at present high enough to keep the labourers in a healthy condition for work, and he is of opinion that the remedies for this state of things are to be found in some form of co-operation supplemented by a system of insurance. The plans described appear to have worked well so far, for the interests both of the employer and the employed.

The *Rationale of Market Fluctuations*, by Mr. Arthur Ellis, is an attempt to describe in plain language the nature of the influences which operate on the prices of exchangeable articles. The present volume represents the third edition of the work, and contains some alterations and additions. Mr. Ellis's chapter on the "General Influences Bearing on all Markets," and that on "Organised Markets," are valuable as explaining a subject which is left too much to the imagination of the reader in most treatises on political economy. The author almost invariably expresses his thoughts in a concrete form, and looks at the economic phenomena of society from a practical standpoint. He is evidently very familiar with the working of the various markets to which he refers in illustrating his remarks. The facts he deals with are of course well known to business men, but we question whether they have been so well put elsewhere as in this volume. As regards the London money market, and its fatal want of organisation, Mr. Ellis makes some most judicious observations. The nature of the danger which underlies the present constitution of "Lombard-street," has been made plain more than once by occurrences of a very painful character. Mr. Ellis quotes at length the examination of the Collies in 1875, and his remarks on the extraordinary revelations then made, receive additional point from the case of the City of Glasgow Bank failure, to which he refers, as in many respects, the "Collie business over again." We may add that in *some* respects it was much worse than the Collie affair. The conduct of the officials of the bank was unquestionably a more heinous offence than that of Messrs. Collie. But what Mr. Ellis desires to urge is the defenceless state of bankers and bill discounters against the plan of operations so successfully carried on by Messrs. Collie, Messrs. Smith, Fleming, Messrs. Hengh, Balfour, and the other firms who have "kept the ball rolling" so long with the money belonging to others. He has no remedy to recommend, and indeed it is not easy even to imagine one that would be likely to meet with acceptance in practice. Not the least interesting portion of Mr. Ellis's book is a history of the fluctuations of the London money market showing the chief changes in the bank rate, and giving their causes since 1844. There is a similar history of the price of

consols since 1800, taking in the chief events affecting that market. With Mr. Ellis's views on labour we substantially agree. His assertion that labour is a commodity, and has a market, requires the addition of a *caveat* against its being taken absolutely. It is, no doubt, a convenient metaphor, but in the case of labourers so much has to be considered besides economics that this form of speech is rather liable to lead us astray. Men cannot be dealt with exactly on the same principles as pig iron, at least not in countries where slavery does not exist. There is, we think, more to be said in favour of trades unions than Mr. Ellis is willing to admit. At the same time there can be no doubt that unions might, as he suggests, very often do more service by "finding out the best markets, and supplying the information to their members," than by taking the lead in an ill-conceived and hopeless strike.

The *Bankers' Magazine*. With reference to the addresses delivered this year by Professor Ingram, at Dublin, as President of Section F, "Economic Science and Statistics," of the British Association; and of Professor Bonamy Price, at Cheltenham, as President of the Department of "Economy and Trade," of the National Association for the Promotion of Social Science; both of which are given in this number of the *Journal*, we would call attention to two articles that have recently appeared in the *Bankers' Magazine*, under the title of the "Two Schools of Political Economy," from papers contributed by M. Maurice Block to the *Journal des Economistes de Paris*. The first will be found in the number for March last, and the second in the number for November. The *Journal des Economistes* and the *Bankers' Magazine* are both to be found in the Society's library.

Journal de la Société de Statistique de Paris.—The last number (12) received of this publication, gives a description of the Society's Exhibits at the International Exhibition of Paris (1878), for which it obtained a silver medal. The exhibits, twenty-one in number, were briefly as follows:—1. The decrees for the formation of the Society, its laws and bye-laws. 2. A collection of the Journal of the Statistical Society of Paris (1860-78). 3. MS. map of the centenarians of France. 4. Map showing the suicides in France. 5. Table showing the advance of elementary instruction in the French army (1828-67). 6. Maps showing the population of France during the period (1857-66). 7. Statistics of stammering in France. 8. Movement of the balances of the Bank of France during the war in 1870, and the payment of the indemnity. 9. Miscellaneous statistics. 10. Maps showing the physical and economic geography of France. 11. Movement of the post. 12. The manner of the increase among the population of the towns and country. 13. Map showing the foreigners resident in France, according to the census of 1876. 14. Kilometric agricultural atlas. 15. Statistical atlas of the population of Paris. 16. Great economical and social facts. 17. Maps of France, showing—(i) The proportion of foreigners, census of 1872. (ii) The proportion of foreigners aided, in 1874, &c. 18. Map of France, representing the production of alcoholic liquors in 1873. 19. Tabular synopsis of the divorces in Belgium from 1830-75, per province,

and in the four towns of Brussels, Antwerp, Ghent, and Liège. 20. Table showing the statistics (demographic) of the Old Netherlands from the end of 1801 to the present time. 21. Statistical Annual of Paris for the year 1873, by M. L. Vacher.

The same number contains also a report by M. E. Cheysson (Ingénieur en chef des ponts et chaussées, chargé de la direction des cartes et plans et de la statistique graphique au Ministère des Travaux publics), upon the different methods employed in the various statistical diagrams exhibited at the International Exhibition of 1878; as well as two other papers that are worthy of attention, viz.: "A Statistical Study of Commerce in General," and "The New Method, called *Rational*, of Agricultural Statistics."

The number under notice completes the 19th volume for 1878, which is of such an interesting character that we append the table of contents:—

Journal de la Société de Statistique de Paris. (Année 1878). Table des Matières du Dix-neuvième Volume.

No. de Janvier.

- I. Procès-verbal de la séance du 14 Novembre, 1877.
- II. Vingt-cinquième anniversaire du Congrès International de Statistique (1853-78).
- III. Le suffrage universel dans ses rapports avec les lois de la population.
- IV. Le mouvement de la population en Italie en 1875.
- V. Le dernier recensement de la population du Japon.
- VI. La population sauvage au Canada.
- VII. Documents officiels Français. Rapport du président de la Commission permanente des valeurs pour l'année 1876. Les droits d'entrée sur les vins Français dans les pays étrangers.

No. de Février.

- I. Procès-verbal de la séance du 12 Décembre, 1877.
- II. La consommation des boissons alcooliques.

No. de Mars.

- I. Procès-verbal de la séance du 9 Janvier, 1878.
- II. Académie des Sciences: Le prix Montyon de statistique en 1877.
- III. Documents officiels Français: Statistique des pêches maritimes en 1876.
- IV. Documents officiels Anglais: Statistique agricole officielle du Royaume-Uni en 1877.
- V. Les chemins de fer de l'Inde Anglaise.
- VI. Variété. Les bêtes fauves et les serpents venimeux dans l'Inde.

No. d'Avril.

- I. Procès-verbal de la séance du 18 Février, 1878.
- II. La réforme des livrets dormants des caisses d'épargne.
- III. Études Parisiennes: Les mariages, les naissances et les décès d'après le *Bulletin municipal*.
- IV. La population de l'Empire d'Allemagne au 1^{er} Décembre, 1875.
- V. Le bétail dans la Plata et le commerce dans la république de l'Uruguay.
- VI. Variétés. Superficie et population de la Belgique au point de vue ethnographique. Le commerce de la librairie et de l'imprimerie dans l'empire d'Allemagne. La population de Puerto-Rico d'après le dénombrement de 1875-76.
- VII. Bibliographie: Le Grands Faits économiques et sociaux.

No. de Mai.

- I. Procès-verbal de la séance du 13 Mars, 1878.
- II. La misère.
- III. La production et l'industrie du coton.
- IV. La population par professions dans le royaume d'Italie.
- V. Variétés.—Premiers résultats du recensement général de la population de la Belgique au 31 Décembre, 1876.—Les progrès de la ville de Turin.—Renseignements statistiques sur la ville de Copenhague.—Le recrutement de l'armée en Portugal.—Résultats sommaires du recensement de la population du Chili.—La question des inhumations à Paris.
- VI. Actes Officiels : Création, à Paris, d'une Commission spéciale de statistique municipale.

No. de Juin.

- I. Procès-verbal de la séance du 9 Avril, 1878.
- II. Études parisiennes (*suite*). La population de Paris et de sa banlieue d'après le dernier dénombrement.
- III. L'instruction primaire en Italie.
- IV. Les forêts de la Russie et leurs produits.
- V. La Population de Saint-Petersbourg.

No. de Juillet.

- I. Procès-verbal de la séance du 8 Mai, 1878.
- II. Procès-verbal de la séance extraordinaire du Bureau et du Conseil du 22 Mai, 1878.
- III. Considérations générales sur le recensement de la population.
- IV. Résultats statistiques de l'application de la loi sur l'ivresse.

No. d'Août.

- I. Procès-verbal de la séance du 8 Juin, 1878.
- II. Procès-verbal de la séance extraordinaire du 20 Juin, 1878.
- III. Le mouvement de la population de la France pendant l'année 1876.
- IV. La principauté de Monaco.
- V. Les ressources commerciales et financières de la Turquie.
- VI. Situation actuelle de la Grèce.
- VII. La Commission permanente du Congrès international de statistique.
- VIII. Avis. Congrès international pour l'étude des questions relatives à l'alcoolisme.

No. de Septembre.

- I. Les conférences internationales de la Société de statistique de Paris.
- II. Coup d'œil général sur la population de nos prisons.
- III. Les progrès de la télégraphie internationale en 1876.
- IV. L'Italie économique.
- V. Variétés.—Le chiffre des entrées à l'Exposition de 1867.—La publicité commerciale.
- VI. Nécrologie : Michel Tschouriloff.

No. d'Octobre.

- I. Les profits que l'État retire de chemins de fer.
- II. Statistique Parisienne.—Résumé des faits et documents consignés au bulletin de statistique municipale pour l'année 1877.
- III. L'Annuaire statistique de la France.
- IV. Bibliographie.

No. de Novembre.

- I. La fortune nationale en France.
- II. L'enseignement secondaire en France (situation au 31 Décembre, 1876).
- III. Variétés. La dette hypothécaire en France.—Le commerce de la France avec les États-Unis.

No. de Décembre.

- I. La Société de statistique à l'Exposition universelle.
- II. Étude statistique sur le commerce en général.
- III. Nouvelle méthode, dite rationnelle, de statistique agricole.
- IV. Les méthodes de statistique graphique à l'Exposition universelle.
- V. Variété. Le chiffre des entrées à l'Exposition universelle de 1878.
Table alphabétique des matières contenues dans le XIX^e volume (année 1878).

Additions to the Library during the Quarter ended 31st December, 1878

Donations.	By whom Presented.
AUSTRIA AND HUNGARY—	
Statistisches Jahrbuch für 1875, Heft 7, und für 1876, Heft 6. 8vo. Wien, 1878	K. K. Statistisches Central - Commission
Budapest. Bericht der Handels-und Gewerbekammer über Gewerbe und Industrie des Budapester kammerdistrictes für 1870-75. 377 und 337 pp., roy. 8vo. 1877	
	Die Budapester Handels- und Gewerbekammer
BELGIUM—	
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